

FLIGHT

The
AIRCRAFT ENGINEER
AND AIRSHIPS

First Aeronautical Weekly in the World. Founded January, 1909

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice and Progress of Aerial Locomotion and Transport
OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

No. 1215. (Vol. XXIV. No. 15.)

APRIL 8, 1932

Weekly, Price 6d.
[Post Free, 7½d. Abroad, 8d.]

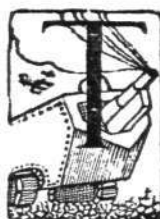
Editorial Offices: 36, GREAT QUEEN STREET, KINGSWAY, W.C.2.
Telephone: (2 lines), Holborn 3211 and 1884.
Telegrams: Truditur, Westcent, London.
Annual Subscription Rates, Post Free.

United Kingdom .. 33s. 0d. United States .. \$8.75.
Other Countries .. 35s. 0d.

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EDITORIAL COMMENT



THE results of the new regulations which the Royal Aero Club has drawn up for this year's race for the King's Cup are distinctly interesting. The ban on professional pilots has been lifted, which is a reform which is very welcome and is generally approved. The King's Cup was originally given in 1922 to further the interests of flying in this country, which were then at a very low ebb. This action by His Majesty had the immediate effect of attracting the attention of the Press and the public to the subject of flying. For the two previous years there had been what is commonly called a slump in aeronautical interest. The companies which ran services across the Channel were struggling along gallantly, but they had yet to learn by experience the technique of air transport. For want of this experience, and from a lack of suitable types of commercial aircraft, the services to Paris were not performing a very useful service to the public. Passengers and letters to be carried were few and far between. In consequence the Press had come to the conclusion that there was no news value in flying stories, unless an accident had to be recorded. The public heard nothing about successful flights, and in fact saw nothing in the newspapers about the subject unless some deplorable accident occurred. Not unnaturally, the idea became general that flying was a very dangerous, and not at all a useful, proceeding. A sort of vicious circle had been established. His Majesty realised the harm which was being done to a cause of great possibilities from which it might well come about that the British Empire could gain great advantages in the future, and the gift of his cup for an air race broke into the vicious circle. At once every paper in the country realised that this great air race would have immense interest for its readers. At the controls in the North and the Midlands huge crowds flocked to the aerodrome to see the competing machines arrive and depart. Those same machines were, for the most part, a curious collection of obsolescent war-time types. People began to notice that there were differences between

DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list:—

1932

- Apr. 8. Imperial Services Boxing Championships.
- "Aerodromes." Paper by J. Dower, before Royal Inst. of Brit. Architects.
- Apr. 13. "The North-West Frontier of India," Lecture by Maj.-Gen. S. F. Muspratt, before R.U.S.I.
- Apr. 13. National Aviation Day First Display, at Luton, Beds.
- Apr. 14. "Aero Engine Accessories," Lecture by W. L. Taylor, before R.Ae.S.
- Apr. 16. W.R.A.F. Reunion Dinner at Criterion Restaurant.
- Apr. 16. T.M.A.C. Dance at Suffolk Galleries, Suffolk St., S.W.1.
- Apr. 20. Fencing: R.A.F. v. Army at Aldershot.
- Apr. 21. "Air Port Development," Lecture by N. Norman, before R.Ae.S.
- Apr. 23. No. 45 Sqdn. R.A.F. Reunion Dinner at Crown and Cushion Restaurant, London Wall.
- Apr. 26. Aero Golfing Society: Instone Challenge Cup, Berkshire G.C.
- May 1. Northamptonshire Ae.C. Combined Motor-cycling and Flying Display.
- May 1. Entries close at double fees for King's Cup Race.
- May 7. Heston Spring Cruise begins.
- May 7. Antwerp Aviation Club Air Display and Garden Party.
- May 14. Coventry Ae.C. Air Pageant.
- May 14-15. Skegness Air Pageant.
- May 16. Northamptonshire Ae.C. Annual Pageant.
- May 18. Household Brigade Flying Club Meeting, Heston.
- May 21. "Morning Post" Cross-Country Air Race, Heston.
- May 21-23. Scottish Flying Club Display, Moorpark, Renfrew.
- May 22-30. Conference of Transoceanic Aviators at Rome.
- May 28. London-Newcastle Air Race for "Newcastle Evening World" Trophy.
- May 28. Brooklands Meeting.
- June 4. Bristol Airport Summer Flying Meeting.
- June 4. Cardiff Flying Meeting.
- June 4. Leicester Ae.C. Flying Display and Motor Gymkhana at Ratcliffe Aerodrome.
- June 5. Reading Ae.C. At Home, Woodley Aerodrome.
- June 11. Leicester Ae.C. Meeting, Desford.
- June 18. Hull Air Display.

one sort of aeroplane and another, and some at least began to study the differences. Thus, for the first time since the war, a living interest in aircraft and flying was aroused, and that interest has never waned since. The debt which the cause of flying owes to King George cannot be overestimated.

Ever since that first race in 1922, the King's Cup has remained the chief racing event (excepting only the Schneider contests) of the British aeronautical year. It is the first event in popular interest, and it ought to be also the chief sporting event in aeronautical interest. We want to see the aircraft manufacturers entering interesting types, flown by their test pilots, and competing against each other in the searching test of a flight round a great part of Great Britain. This was impossible when professional pilots were barred. The removal of that restriction is very welcome indeed.

We cannot think that the objects for which the King's Cup was originally given can be properly fulfilled if the race resolves itself into a contest between private owners and club members in light aeroplanes. The aeronautical interest of the race becomes then too slight. Moreover, fields tended to become almost unmanageable, with a risk of collision at controls. The Grosvenor Cup, we think, is the proper race for competition between private pilots, and it would be a good thing if the Royal Aero Club would do something to lend more general interest to that race. This year the club has stipulated that contesting pilots in the King's Cup race must have flown solo for at least 100 hours. Machines not capable of 110 m.p.h. are also barred, so that the contest should not be unduly prolonged by waiting for lame ducks to come home. Only the 50 who have done best on handicap in the first section will be allowed to start again in the second section. So far there have only been 47 entries, so it does not seem that many will suffer under this stipulation. In short, the club has stipulated that only experienced pilots in fairly fast machines should enter, and this ought to mean a good race.

As a result of these new rules, we are glad to see some entries which are not in the light aeroplane class. The Avro Mail-plane, the Vickers "Viastra," the Segrave "Meteor," the Avro "Cadet," the Hawker "Tomtit," are all machines which it should be interesting to study in a long cross-country race. We are glad to see that two "Monospar" machines have been entered, as this is a very interesting design which has not yet been brought prominently before the public. The dark horse of the race is the Percival "Gull." Details about this machine have been kept very secret, but we know that Mr. Percival has sound ideas on what an aeroplane ought to be, and we look forward to seeing how he has translated them into an actual machine.

In the small class, it is not surprising to see an entry of eight Comper "Swifts." The flight of Mr. Butler to Australia brought home to the flying public the excellent qualities of this little single-seater and of the Pobjoy engine, and it is only natural that a number of entrants should think that the combination will give them a good chance in a cross-country race round Britain. In numbers this type is only beaten by the "Puss Moth," of which there are ten. Three "Fox Moths" will engage in their first race, and, no doubt, will show off their good qualities to the public. Entries by the Prince of Wales and Prince George will add to the import-

ance of the contest. The Prince has entered a "Swift," to be flown by Flt. Lt. E. H. Fielden, and Prince George a "Puss Moth," with Flt. Lt. J. G. D. Armour as pilot.

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Sir Alan Cobham is nothing if not a good propagandist. If a practical realisation of what flying means is to be brought home to the British man in the street and in the village, no one is better qualified to act as demonstrator than Sir Alan. It is perfectly true, as he says, that sufficient opportunity is not given to the British public to come into close contact with practical flying. Everybody has met persons who, though well versed in most experiences of life, have never actually seen an aeroplane land or take off, because they live in some district which does not boast an aerodrome. It is rather hard for dwellers in London and other large towns to grasp how very extensive is the rural part of Great Britain. It is true that wireless receiving sets and cinematograph theatres have penetrated to most villages, or at least to the principal market towns of most rural districts, but the aeroplane has less penetrative power. It is the one feature of modern scientific progress which remains comparatively unfamiliar to many millions of the countrymen of Sir George Cayley, John Stringfellow and Sir Alliott Roe. It is time that we should change all that, and Sir Alan Cobham, handsomely backed as usual by Lord Wakefield, is setting himself to change it.

Accordingly, Sir Alan is setting off this month on a tour of six months, which will include visits to 175 towns in Great Britain. He is taking with him a dozen or so aircraft of different types, including ordinary aeroplanes, an Autogiro, and gliders. He knows well, as every good showman knows, that to make the public swallow his pill he must gild it copiously. His bait (to vary the metaphor) is, first, his own very popular name, and secondly, an attractive aeronautical display, which will include such items as aerobatics and parachute drops. There is a risk, of course, that many in the crowds which are sure to be attracted to the spectacle will carry away the impression that flying means risking one's life, and that all who venture into the air are of the race of super-men. Even those who accept free flights in very sober types of aeroplane will want to pose before their less adventurous friends as somewhat heroic persons. The impression that flying is an adventure is not what any propagandist wants to produce; and Sir Alan himself in innumerable speeches has laid himself out to combat that view. He wants everyone to realise that flying is safe. Still, unless he draws his public he will not be able to produce any impression at all; and so this risk has to be run. To make a story with a "news value" out of the absolute safety of flying is a nut which even the most experienced propagandists have found it hard to crack. The mere fact that Sir Alan was knighted for having made a number of flights across the Empire seems to prove that he must be a very heroic person. If he did not run risks, why, asks the man in the street, was he knighted? Still, when the crowd has been collected, if anyone can persuade the people to take a proper view of air travel and transport, Sir Alan Cobham will be able to do it. He is a most convincing and persuasive speaker.

Vickers

"Vildebeest"

TORPEDOPLANE

This machine, which can be used for a variety of purposes, is dealt with below mainly in its torpedoplane form



IN view of the fact that the Vickers "Vildebeest" was described and illustrated in FLIGHT of November 6, 1931, it is not thought necessary to describe in the following article the general structural peculiarities of the machine, but rather to devote the available space to those features which are characteristic of it in its capacity of a torpedoplane. It was pointed out in the previous description that the "Vildebeest" can be used for torpedo dropping, day or night bombing, and reconnaissance. Moreover, the machine is supplied as an ordinary landplane and as a twin-float seaplane, while a variety of engines can be fitted to suit purchasers' requirements.

The main characteristics of the "Vildebeest" are given in the table on this page. From these it will be seen that the machine has a very good performance when fitted with the Hispano Suiza 12 Lbr. engine, which develops a normal maximum of 595 b.h.p. at 2,000 r.p.m. This engine is of the geared type, the gear ratio being 0.5:1, and the compression ratio is 6 to 1.

It is a feature of most Vickers machines that the ratio of gross weight to tare weight is high; in other words that the structural efficiency is good. In the case of the Vickers "Vildebeest" seaplane this ratio is no less than 1.735, so that the machine carries as disposable load 73.5 per cent. of its own weight.

VICKERS "VILDEBEEST" TORPEDOPLANE

595 h.p. Hispano-Suiza 12-Lbr. Engine

Dimensions

	ft.	in.	m.
Length o.a.	40	0	12.20
Height o.a.	16	3	4.96
Wing span (upper and lower)	49	0	14.94
Wing area	728 sq. ft. (67.7 m. ²)		

Weights

	lb.	kg.
Weight of machine bare	5,100	2 320
Crew, fuel and military load	4,000	1 820
Gross weight	9,100	4 140

Loading

Wing loading	12.5 lb./sq. ft. (61.2 kg./m. ²)
Power loading	15.3 lb./h.p. (6.95 kg./CV)

Performance

Altitude		Max. Speed		Time of Climb.
ft.	m.	m.p.h.	km./hr.	Minutes
0	0	132.5	213.5	—
3,280	1 000	127.5	205	6.5
4,920	1 500	124.0	200	11.0
6,560	2 000	120.0	193	17.0
9,840	3 000	107.0	172	43.0
Initial rate of climb		600 ft./min. (3.05 m./sec.)		
Absolute ceiling		11,000 ft. (3 350 m.)		
Landing speed		61.5 m.p.h. (99 km./hr.)		
Cruising speed at 6,560 ft. (2 000 m.)		106 m.p.h. (170 km./hr.)		
Fuel consumption		206 lb./hr. (94 kg./hr.)		

This figure is based on a tare weight of 5,240 lb., which includes 140 lb. of fixed equipment of a character always fitted whatever functions the machine is desired to perform. Included in this fixed equipment are the following items: Pilot's instruments, safety belt, gunner's harness, belt feed gun mounting, ammunition boxes, drum-feed gun sight, Scarff ring, drum pegs, observer's instruments, fire extinguishers, electrical equipment, Very pistols and cartridges, bomb gear and torpedo release. Thus it will be seen that the tare weight upon which the gross to tare weight ratio is based is not by any means a "stripped" figure. If one subtracts this fixed equipment the bare stripped weight of the machine becomes 5,100 lb., and the ratio gross to bare weight becomes 1.78.

Certain removable equipment amounts to another 240 lb., which gives a normally equipped weight of 5,480 lb. In addition to this the machine can carry, when used as a torpedoplane, a disposable load of 3,620 lb. (1 635 kg.), composed of the following items: Pilot and observer, 352 lb. (160 kg.); W.T. equipment, 100 lb. (45 kg.); intercommunication set, 7 lb. (5 kg.); torpedo suspension and release gear, 86 lb. (39 kg.); torpedo up to 2,020 lb. (909 kg.); petrol (124 gallons=434 litres), 955 lb. (434 kg.); oil (8 gallons=36 litres), 100 lb. (45 kg.). With this disposable load the total all-up weight is 9,100 lb. (4 140 kg.).

The normal petrol capacity of 124 gallons is contained in two main tanks of 62 gallons (282 litres) each. If the machine is required for greater range, an auxiliary petrol tank of 60 gallons (273 litres) capacity can be fitted, a corresponding weight of military load being, of course, sacrificed to keep the machine within its gross weight of 9,100 lb.

With normal petrol tankage the duration is 4.6 hr. at a cruising speed of 106 m.p.h. at a height of 6,560 ft., or a still-air

AS A SEAPLANE: The "Vildebeest" in full flight. The upper photograph shows the machine as a landplane, with the torpedo in place.





cruising range of 488 miles (785 km.). When the auxiliary petrol tank is fitted, the duration becomes 6.8 hr., and the corresponding still-air cruising range 720 miles (1 160 km.).

The performance shown in the table is based upon British standard atmospheric conditions (temperature 15 deg. C. and barometer 760 mm. at zero height). At a total all-up weight of 9,100 lb. (4 140 kg.) the following performances are guaranteed: Maximum speed at sea-level, 130.5 m.p.h. (210 km./h.); climb to 2 000 m. (6,560 ft.) in 18 min. ;

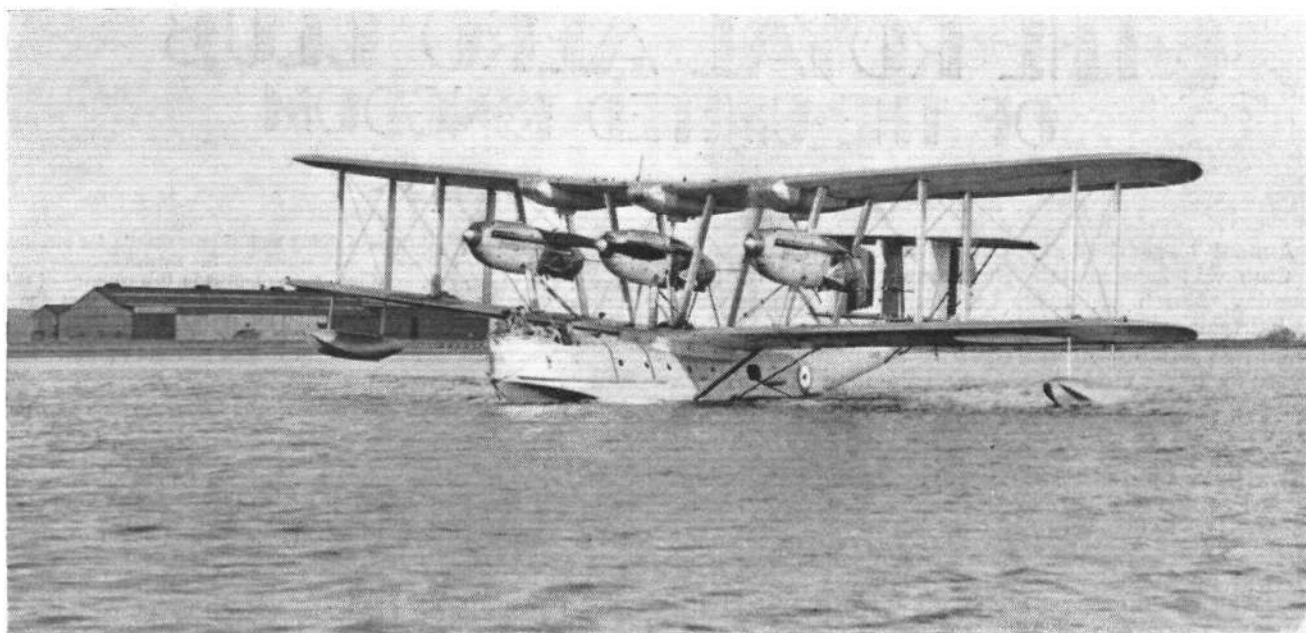
landing speed at zero altitude, 59.5 m.p.h. (96 km./h.). These performances, it is pointed out, can only be guaranteed provided the engine develops not less than 595 b.h.p. at 2,000 r.p.m. at sea-level.

From an aerodynamic point of view it is of interest to find that the Everling "high-speed figure" $\frac{\eta}{2k_v}$ is as high as 19.4, which is well above the average for a twin-float seaplane, and points to a very low minimum drag coefficient.



AS A LANDPLANE: Two views of the "Vildebeest" in the act of dropping its torpedo. The lower photograph gives a good idea of the small amount of spray created by the torpedo on striking the water.





The Blackburn "Iris V"

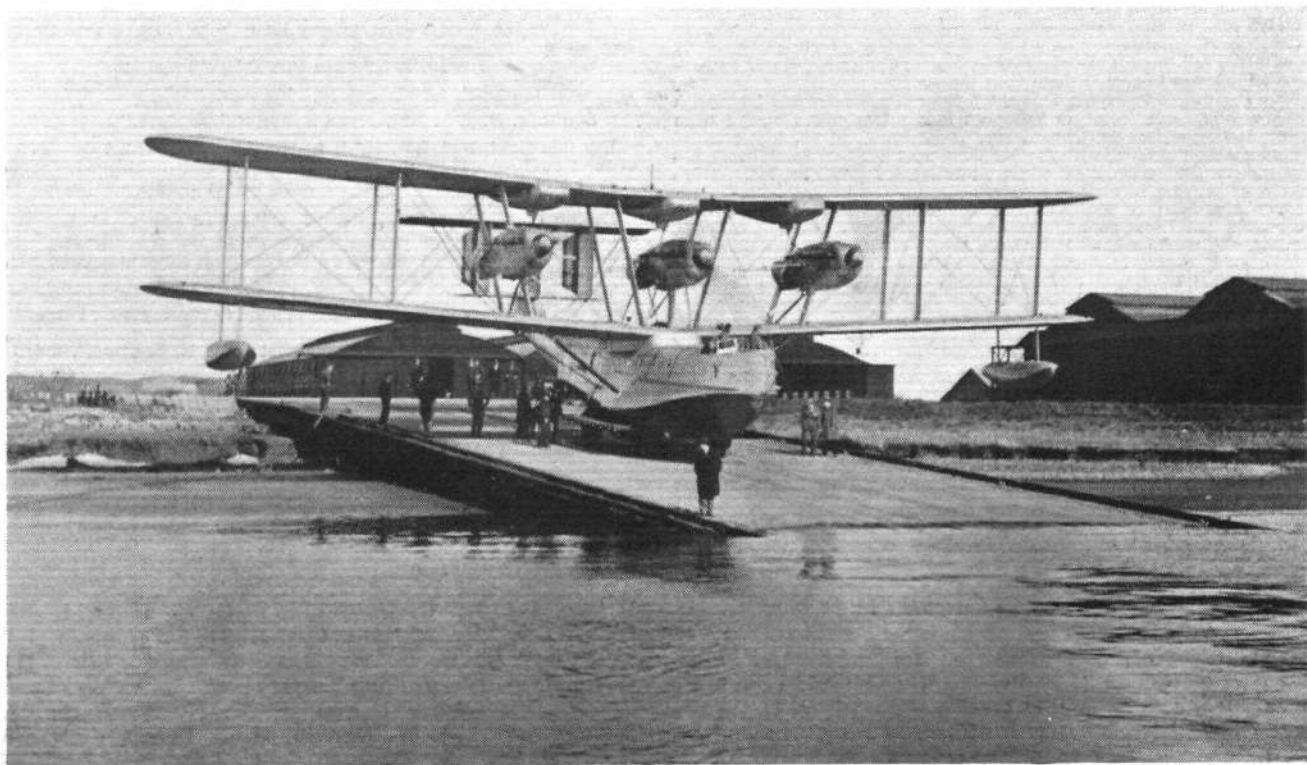
THE "Iris V," shown in the photographs on this page, is the latest of quite a family of flying boats produced by the Blackburn company, of Brough, East Yorkshire.

The first "Iris" was completed in 1926, and was of composite construction, with a wooden hull and a superstructure of wood and metal. In 1927 the superstructure of the first machine was fitted to a metal hull, the resultant flying boat being known as the "Iris II." Towards the end of 1929 the first machine of the "Iris III" class was launched. This had metal superstructure and metal hull.

So far all the "Iris" boats have been fitted with three Rolls-Royce "Condor" engines. In the "Iris V," however, a change has been made, and three Rolls-Royce "Buzzards" have replaced the "Condors." Our photographs show the machine being launched at Brough re-

cently before proceeding to Felixstowe for official trials. The fitting of the more powerful engines (825 h.p. each) has naturally resulted in a considerably increased performance and a greater power reserve. Details may not be published at the moment, but with the new power plant and the already well-proved seaworthiness, the "Iris V" should be a very useful type indeed.

An examination of the photographs will show that the machine is in practically all respects identical with the "Iris III." The engine nacelles, however, have obviously been redesigned, and the mounting of the outboard "Buzzard" engines is also different, the supports now being in the form of single struts carrying the actual engine bearers. This has resulted in greater aerodynamic cleanliness and probably contributes materially to the better performance.



THE BLACKBURN "IRIS V": This photograph shows the machine being launched down the slipway at Brough, her three Rolls-Royce "Buzzard" engines already running. In the upper photograph the machine is taxiing slowly with only the outboard engines running.

THE ROYAL AERO CLUB OF THE UNITED KINGDOM

OFFICIAL NOTICES TO MEMBERS

THE Annual General Meeting of Members of the Royal Aero Club was held at 119, Piccadilly, London, W.1, on Wednesday, March 30, 1932, Lt. Col. M. O'Gorman, the Vice-Chairman, presiding.

Committee Ballot.—As the result of the postal ballot the following members were elected to fill the nine vacancies on the Committee of the Club:—Capt. H. S. Broad; Maj. C. J. W. Darwin, D.S.O.; W. Lindsay Everard, M.P.; Maj. A. Goodfellow; Col. F. Lindsay Lloyd, C.M.G., C.B.E.; John Lord; Lt. Col. J. T. C. Moore-Brabazon, M.C., M.P.; Lt. Col. M. O'Gorman, C.B.; Maj. H. A. Petre, D.S.O., M.C.

Election of President and Vice-Presidents.—The Duke of Atholl was unanimously elected President.

The Duke of Sutherland and Lord Wakefield of Hythe were unanimously elected Vice-Presidents.

The Chairman's Speech.—In addressing the meeting the Chairman said:—

At this Annual Meeting we signalise the end of a remarkable year in our Club's history. The winning of the Schneider Trophy outright, admirable light aeroplane performances, the world's highest speed record and now our new Club quarters.

Last year we scarcely foresaw that in six months we should be in possession of our new Club premises, comfortable and suitable. By hard work from Committees and Staff and by the assistance of our Bankers, duly guaranteed by the Members who believe in the future of aeronautics, we have something on which the Club is to be congratulated and the workers thanked, as also the guarantors who take the risk and get in return only the sense that they have helped the good cause.

It is now the turn of the Members generally to back up the work done, not only by using the Club frequently, patronising the facilities it offers, but also by each one severally making a personal effort—writing say at least one letter—to increase the Membership with suitable candidates. Only the Members can do this; we want more Members. Good potential Members exist.

We can offer a club in the centre of clubland, now more than ever appropriate to our National status and corresponding better with the Club's International position—which is one of very vital importance to our future. Actually, I can assure you that we stand as high as any such Club anywhere.

Our cooking is undoubtedly good—and not expensive. We can arrange for dinner parties to be held in private rooms for moderate numbers, 10, 20 or 25. The accommodation for our lady friends to be received is a success. The squash rackets courts is also. The suggestion book is being helpfully used—and it is considered fortnightly—usually so far to meet the wishes recorded as far as possible.

To handle the increased work it has been found useful to split up responsibility among the staff. The subject of Sport, Touring—what may be called the "Society of Encouragement," functions of the Club are entrusted to Commander Perrin—while the new Club House and its many responsibilities come under Mr. B. Stevenson—who, as House Manager, works directly under the House Committee—a very active body, meeting fortnightly, nearly always with the full attendance of all its Members, Chairman, Major Petre—*en passant*, I ask you to accord them your thanks.

I believe I am right in saying that the former Members of the Cavendish Club who are now our Members have not found themselves ousted from former conveniences—but on the contrary.

The Club has kept in touch with the Air Movement in all its developments—instruction, certification of pilots, gliding, touring, competitions, etc. There has been great progress in Private Flying.

The goodly number of 697 Aviators' Certificates granted by the Club this year does not show an increase over the previous year. This year, for learning, the weather conditions have been difficult and also there has been the notable economic world slump which has made people chary of new expenditure. By the end of 1931, there were 2,091 holders of "A" licences in this country—and I draw your attention to a most satisfactory increase in the number of flyers, who own their own aircraft. It amounts to over 400.

Embraced and united by our General Council, we have 22 Light Aeroplane Clubs. They represent a total membership of 6,711 and have, since their inception, produced no less than 1,554 new pilots.

This working together has produced benefits to ourselves and to all the Clubs, notably by co-ordinating our approach to the Government on behalf of the flying movement. Exchange of information and views has also helped all the Clubs and ours. Our successful action in relation to the renewed subsidies granted by Parliament derives from this—though the matter belongs to next year's and not this year's meeting.

This most economical form of flying and of propaganda for air-mindedness has shown a marked increase. We appointed the British Gliding Association to be, under the Royal Aero Club, the exponent in this country of the International Code Sportif in gliding matters. We arranged that the Gliding Committee of the Fédération Aéronautique Internationale should be derived from nominees of the National Aero Club, chosen with the aid of the National Gliding Association, and this bids fair to be a just and equitable solution of what might have proved a thorny subject.

The British Gliding Association have now about 80 Gliding Clubs and, during the year, over 250 gliding certificates have been issued by the Royal Aero Club.

We are continuing to build up a centre of information for air tourists *re* Permits, Triptyques, Carnets, how to go and where to go, landing grounds, prohibited areas, air corridors, formalities, the loan of air maps, etc. We provide far more International air touring than any other Club or country. For that we pay the penalty of pioneers. When we arrive abroad, we may find the local club—though important enough with its National Government to be of use for negotiations—is not represented on the aerodrome of arrival, and even the local Customs Officers do not always know the rules of the Carnets, etc., which they administer. The remedy for this is not using the voice of indignation when back at home—but the careful taking of notes of the exact time, place and cause of trouble, so that later the education of erring officers may be completed. The F.A.I. has arranged for Carnets to be available for 12 months in lieu of 6 months, so that the number of Carnets issued in 1931 in England was 386 against 450 of the previous year.

Prince Bibesco, the President of the F.A.I., is taking active steps as an air tourist himself—and the Royal Aero Club is supporting him, as are all the F.A.I. clubs, in an endeavour to simplify all customs formalities. I had a long and pleasant interview with Lord Londonderry, who is certainly minded to be helpful.

The F.A.I. representation involves much work on us, a certain responsibility and some expense—but it is a keystone of the Arc de Triomphe which we are building. Through it and by it alone can we get Carnets and Triptyques—through it we hold the sole control of the sport and records—through it and through working with it, we ensure harmony and understanding with the unique National body in other countries which we must traverse for sport or travel unless civil flying is to become a merely local gymkhana game.

I know something both of the difficulties and advantages of these international relations, as you have entrusted me with being one of your representatives since the Club started. The F.A.I. is of value to us both for our interest and our prestige.

Thanks to the generosity of Lady Houston, we successfully defended the Schneider Trophy for the third time in succession and thereby secured its permanent possession, a goal for which the air-minded nations of the world have aimed for the past eighteen years. The Supermarine Rolls-Royce S 6 B, which was successful under the piloting of Flt.-Lt. J. N. Boothman, completed the 350-km. course at 340 m.p.h.

The World's greatest speed was accomplished on Supermarine Rolls-Royce S. 6 B, piloted by Flt.-Lt. G. H. Stainforth, at a speed of 407½ m.p.h., which speed may well remain unbeaten for some little time.

Other outstanding performances in 1931 were:—

<i>England to Australia</i>	
C. W. A. Scott, on a D.H. "Gipsy Moth"	9½ days.
C. A. Butler, on a "Comper Swift"	9 days 2 hr.
<i>Australia to England</i>	
C. W. A. Scott, on a D.H. "Gipsy Moth"	10 days 23 hr.
J. A. Mollison, on a D.H. "Gipsy Moth"	8 days 19 hr.
<i>England to Cape Town</i>	
Gordon Store and Miss Salaman on a D.H. "Puss Moth"	5 days 6 hr.
<i>New York to London via South America and West Africa</i>	
Sqd.-Ldr. H. J. L. Hinkler, on a D.H. "Puss Moth."	

For this flight, Sqd.-Ldr. H. J. L. Hinkler was awarded the Gold Medal of the Royal Aero Club, the Britannia Trophy and the Segrave Trophy.

It is interesting to note that all these flights were accomplished on light aeroplanes of British manufacture.

During the year, the Flying Services Fund of the Royal Aero Club has distributed £376 in grants and allowances to the dependants of deceased airmen. This fund was established in 1914 and, since that date, has distributed approximately £22,500 in grants and allowances.

The Funds are nearly exhausted and it has been decided to close down the Fund and hand over the small balance in hand to the Royal Air Force Memorial Fund.

During the past year, Air Vice-Marshal C. A. H. Longcroft, much to our regret, resigned from the Committee.

The vacancy was filled by the election of Lord Gorell, whom we welcome here this evening.

Offices: THE ROYAL AERO CLUB,
119, PICCADILLY, LONDON, W.1.
H. E. PERRIN, Secretary.

Aero Golfing Society v. Felixstowe and Martlesham (R.A.F.)

A GOLF match between Aero Golfing Society and Felixstowe and Martlesham (R.A.F.) for the Challenge Trophy, presented by the Aero Golfing Society, was played at Woodbridge on Saturday, April 2, resulting in a victory for the Royal Air Force. It was a 10 a side match of 36 holes, decided on holes up, the final score being Royal Air Force 29, Aero Golfing Society 22. The following were the teams:—*Felixstowe and Martlesham (R.A.F.)*: S. N. Morris, Flt. Lt. E. D. Barnes (Captain), Flt. Lt. V. S.

Parker, Flt. Lt. C. H. Cahill, F/O. G. L. G. Richmond, Flt. Lt. D. S. Earp, Sqd. Ldr. E. Digby Johnson, Flt. Lt. E. P. M. Davis, F. W. Meredith, Sqd. Ldr. H. W. McKenna. *Aero Golfing Society*: A. J. A. Wallace Barr, Flt. Lt. L. Massey Hilton, F. E. N. St. Barbe, A. G. Hazell, Maj. C. J. W. Darwin, H. E. Perrin, C. R. Fairey, Lt. Col. W. A. Bristow, Sqd. Ldr. T. H. England, F. Handley Page (Captain). In the evening the Aero Golfing Society entertained the Royal Air Force team to dinner at the Felix Hotel, when the Challenge Trophy was duly presented.

THE KING'S CUP AIR RACE

BELOW we give the preliminary list of entries for the King's Cup Air Race, which will be flown on July 8 and 9 next, starting from and finishing at Brooklands Aerodrome. Particulars of the 1,250-mile course, etc., were published in our issue for February 19 last. Late entries may be received up to May 1 next.

Entrant.	Aircraft.
H.R.H. the Prince of Wales ..	Comper "Swift."
H.R.H. Prince George ..	D.H. "Puss Moth."
Lt.-Col. L. A. Strange ..	Spartan 3-str.
Capt. H. H. Balfour ..	Spartan Mailplane.
A. S. Butler ..	D.H. "Fox Moth."
Mrs. A. S. Butler ..	D.H. "Puss Moth."
A. E. Hagg ..	D.H. "Fox Moth."
Capt. G. de Havilland ..	D.H. "Puss Moth."
E. W. Hart ..	D.H. "Puss Moth."
Flt. Lt. H. M. Schofield ..	"Monospar."
Miss Winifred Brown ..	Avro "Sports Avian."
Sqd. Ldr. W. L. Runciman ..	D.H. "Puss Moth."
Lord Wakefield ..	D.H. "Fox Moth."
John Grierson ..	D.H. "Moth."
J. D. Siddeley ..	Avro "Mailplane."
A.M. Sir John Higgins ..	Avro 631.
G. E. de Lengerke ..	Segrave "Meteor."
Miss W. E. Spooner ..	D.H. "Moth."
W. Lindsay Everard, M.P. ..	D.H. "Puss Moth."
Capt. Gerard Fane ..	Comper "Swift."
F. R. Walker ..	Comper "Swift."

Entrant.	Aircraft.
Miss F. J. Crossley ..	Comper "Swift."
F/O. H. Bailey ..	Comper "Swift."
Capt. I. C. Maxwell ..	Comper "Swift."
Lt. C. R. V. Pugh, R.N. ..	Avro "Sports Avian."
H. C. Mayers ..	Comper "Swift."
W. L. Hope ..	D.H. "Puss Moth."
Sqd. Ldr. J. McKelvie ..	D.H. "Moth."
A. C. Thornton ..	Arrow "Active."
A. J. A. W. Barr ..	Avro "Avian."
F/O. E. C. T. Edwards ..	"Martlet."
Mrs. L. B. Rhodes-Moorhouse ..	D.H. "Moth."
R. Westenra ..	D.H. "Moth."
Sir Robert McLean ..	Vickers "Viasra."
K. C. Gandar Dower ..	D.H. "Moth."
J. F. Legard ..	Avro "Avian."
Lady Bailey ..	D.H. "Puss Moth."
G. Kenning ..	Blackburn "Bluebird."
R. Blackburn ..	Blackburn "Bluebird."
M. A. Lacayo ..	Comper "Swift."
Lt. Caspar John, R.N. ..	Avro "Avian."
A. C. M. Jackaman ..	"Monospar."
Lt. Com. E. W. B. Leake, R.N. ..	Percival "Gull."
Lt. Com. G. Rodd, R.N. ..	D.H. "Puss Moth."
M. D. Scott ..	D.H. "Puss Moth."
Sqd. Ldr. F. E. Guest ..	Hawker "Tomtit."
L. G. Anderson ..	D.H. 51.

NATIONAL AVIATION DAY

ALUNCHEON was held at the Connaught Rooms on Monday, April 4, to inaugurate the National Aviation Day Display campaign which is being launched by Sir Alan Cobham on April 13 at Luton. Between that date and October, Sir Alan, together with his large organisation, will visit some 175 towns situated from "John o'Groats to Land's End."

The display, which will be given at each town, will consist of 25 separate items, and from 11.30 a.m. onwards an endeavour will be made to start a new item every quarter of an hour and, if possible, the complete programme will be gone through twice during each day. Over a dozen aircraft will take part in the display, comprising a variety of types, including such widely diverse machines as the Autogiro and the Comper "Swift." There will also be the new Airspeed Ferry, which has largely been designed to the ideas of Sir Alan, and which it is hoped will be the ideal machine not only for joy riding, but also for general commercial passenger work. The items of the display will, of course, include aerobatic and similar forms of flying on light aeroplanes, while there will also be gliding from both aircraft- and auto-towed starts by Mr. Lowe Wylde, of B.A.C., Ltd., Maidstone; an air race round pylons; a lesson in flying framed to demonstrate mistakes which should be avoided; an aerobatic display controlled by wireless; formation flying; and parachute descents. Throughout each day passenger flights will naturally be available in many types of aircraft, including the "Autogiro," while flying lessons will be given in light aircraft.

During the tour an endeavour will be made by Sir Alan to secure over one million signatures to a mandate which has been compiled by the following bodies:—Royal Aeronautical Society, Royal Aero Club, the Air League, Guild of Air Pilots and Air Navigators, General Council of Associated Light Aeroplane Clubs, British Gliding Association, Association of British Chambers of Commerce, the London Chamber of Commerce, the Automobile Association, Society of Model Aeronautical Engineers, and the Model Aircraft Club. Each of these bodies has subscribed wording to the mandate which represents its own particular view as to the steps which should be taken to further the good of aviation in the country.

The mandate is as follows:—

THE ROYAL AERONAUTICAL SOCIETY

That as a nation's progress in aviation is determined by the technical knowledge at the disposal of its aircraft constructors, it is incumbent upon Great Britain to safeguard the leadership which has been won in this field by placing research at the forefront of every policy of development, for it is only by research that advancement can be achieved.

THE ROYAL AERO CLUB

That air racing and record breaking achievements should be given greater encouragement by the Government and the fact recognised that there is no sounder investment for the British nation than to build aircraft for record breaking and air racing: because—

(a) The scientific knowledge gained from such achievements has done more to improve British aircraft than possibly any other single activity. The record speed of to-day is the commercial speed of to-morrow.

(b) The sporting nature of flying has always been the backbone of British interest in the air, and continued endeavour in this direction is necessary to the life of British aviation.

THE AIR LEAGUE OF THE BRITISH EMPIRE

Believing that Britain's future depends upon a closer linking up of the Empire and that this can best be done by means of aviation, it is, in our opinion, essential:—

(1) To increase the frequency and speed of existing air routes.
(2) To extend the Indian air route to Australia.
(3) To explore air routes and to establish services with Canada and in the West Indies.

(4) To establish twenty-four hour services of mails.
(5) To bring home to the public the vital importance of aviation to the security and well-being of the Empire.

THE GUILD OF AIR PILOTS AND AIR NAVIGATORS

That the competence of civil and commercial air pilots is a matter of vital importance to the general public and that the following recommendations of the Guild of Air Pilots and Air Navigators should be adopted forthwith:—

(a) That no persons should be employed as instructors in flying unless their qualifications comply with standards adopted by the Guild.
(b) That the standard of training of commercial air pilots in air navigation should progressively be raised to higher levels.

GENERAL COUNCIL OF ASSOCIATED LIGHT AEROPLANE CLUBS

That results of great national importance have been accomplished by the light aeroplane clubs and that it behoves the nation to give the fullest support to these clubs to enable them to carry on and extend their good work. The public should grant their forbearance for any inconvenience that flying may cause, because this inconvenience will disappear with the improvement of aircraft. Municipalities should give every assistance and encouragement to their local clubs, and the Government should continue to aid the movement until such time as every club is firmly established.

THE BRITISH GLIDING ASSOCIATION

That the Government make a grant of an adequate sum of money spread over a number of years: (a) for the establishment and maintenance of Central Scientific and Training Stations to enable the Youth of Britain, and scientifically and technically minded people, to develop and carry out research work through motorless flying for the benefit of British aviation; (b) a grant be made for the establishment of a central fund available for the purpose of assisting clubs, to establish flying grounds, erect hangars, buy machines and equipment. That the British Gliding Association be entrusted with the establishment, maintenance, direction and control of such stations and the administration of the grants to clubs.

THE ASSOCIATION OF BRITISH CHAMBERS OF COMMERCE

That in view of the rapid developments which are taking place in aviation, suitable sites for aerodromes should be secured in the vicinities of the principal centres and allocated to that purpose without delay.

THE LONDON CHAMBER OF COMMERCE CIVIL AVIATION SECTION

That, as British aviation is one of the most important factors in the development of trade:—

(a) Civil and commercial aviation in all its aspects should be developed to the fullest extent.

(b) Aviation activities should be speedily inaugurated in all parts of the British Isles; and
(c) Every support should be given to the plea of the Association of British Chambers of Commerce that municipal authorities should foster the development of aerodromes, thus making it possible for every town to have facilities for the reception of aircraft.

THE AUTOMOBILE ASSOCIATION

That owners of suitable sites be urged to give through the A.A. temporary permission for aeroplanes to land in case of need; civil authorities are asked to co-operate in the service of weather reports and forecasts now being broadcast by the A.A. from Heston, and to arrange for the reception and recording of the broadcasts so that they may always be available to enquirers. By these means the development of British air travel will be hastened.

THE SOCIETY OF MODEL AERONAUTICAL ENGINEERS

That the model aircraft societies and clubs should be encouraged by educational authorities throughout the country with the ultimate object of establishing classes for the study of aeronautics and of forming model aeroplane clubs at each school for the practical demonstration of model work.

THE MODEL AIRCRAFT CLUB (T.M.A.C.)

That municipal authorities should do all in their power to assist model aeroplane clubs and, in particular, should give facilities on open spaces for the clubs to conduct their meetings.

At the luncheon, which was attended by over 150 prominent persons in aviation, the Master of Sempill presided, and in his speech of introduction he expressed the opinion, also held by the late Sir Sefton Brancker, that Sir Alan Cobham was the most effective aviation propagandist in the country. He referred back to Sir Alan's previous tour of the country, when, through the generosity of Lord Wakefield, some 10,000 school children were given flights free of charge. He then announced that Lord Wakefield was again providing the means whereby another

10,000 flights could be given, but in this case they were to be given to civic and municipal authorities.

Sir Alan, in reply, described the magnitude of his organisation and disclosed all the details for which it had been necessary to cater in order to ensure the success of his venture. He made an impassioned plea for people to take an interest in aviation and maintained that the justification of his National Aviation Day display was the public interest it would arouse. Sir Alan referred to his souvenir programme which he hoped everyone would keep and which contained the following message from the Prince of Wales: "Aircraft does much to make the whole world kin, and to lead to that community of thought among nations which is the best augury for the future peace (and with peace, confidence and prosperity) of the world." The foreword to the same programme had been written by Lord Wakefield wherein he stated that "The primary cause of war is lack of interest between nations. An essential condition of world peace is close intercourse between the peoples of the world. Speed and easier methods of communication and transportation are the obvious means to this end. Aviation provides this speed and ease which are needed, this main contribution to our modern amenities. Thus the development of aeronautics is a practical service to mankind and should help us all to attain fuller knowledge of once distant neighbours to become students of the world without abating one jot of our national individuality." In conclusion, both Mr. F. G. Bertram and Sir Harry Brittain said a few words in recommendation of Sir Alan's enterprise.



THE HON. MRS. VICTOR BRUCE'S REFUELLING FLIGHT

EVERYONE in close touch with aviation matters now knows that the Hon. Mrs. Victor Bruce, with her husband as co-pilot, is planning to attempt to break the world's refuelling record flight this summer. It is premature to discuss the probable outcome of this flight, but if it fails then it will not be on account of lack of careful organisation. Those who know Mrs. Bruce are fully aware that there are few women, or for that matter men, who are more capable organisers, and therefore we were hardly surprised when we learnt of the lengths to which she has already gone to ensure that her attempt shall be a successful one.

From the outset Mrs. Bruce has realised that although she herself has her "B" pilot's licence and has passed all the blind flying tests with honours at the school of Air Service Training, Ltd., Hamble, yet it would be foolish to assume that she would be capable of navigating the aircraft accurately to the requisite area of good weather where contact could be made with the refuelling aircraft—particularly after many days, or weeks, in the air! She has therefore arranged to be relieved of all these duties by having on the ground a mobile station which will do almost everything for her. This station will be a six-wheeled lorry fitted with Marconi wireless and carrying meteorological and navigation experts. In it, weather reports will be received constantly and "correct-up-to-the-minute" weather maps will be plotted. In her machine, which will, of course, also carry wireless, Mrs. Bruce will

then be able to receive directions as to where to steer. In fact, she will be directed from the ground throughout the whole flight. As an adjunct to the ground station a pilot will follow with a Comper "Swift" (Pobjoy); and he will ascend whenever desired in order accurately to determine the upper-air conditions. In this way it is hoped that it will be possible for the machine to be directed to places where refuelling will always be possible.

Mrs. Bruce, herself, will assist the ground station by getting wireless bearings from the directional stations such as Croydon and Lympne, which she will transmit by wireless telephony to the lorry; they, in turn, plotting her position and issuing instructions accordingly.

In a flight like this it is necessary that the aircraft used should be comfortable and everything that is possible to ensure this is being done. It will, in fact, be almost a travelling flat, with, as the house agents say, "every modern convenience," including arrangements for sleeping, cooking, and bath, etc.

The actual route or area to be flown over will, of course, largely depend upon the weather, but already arrangements have been concluded whereby the machine will appear on certain dates over such places as Blackpool and Portsmouth. These appearances coinciding with aerial displays.

The utility of such records is open to debate, but there is no doubt that the success of the flight would provide a striking testimonial for the efficiency of British aircraft and engines, and the stamina of the pilots.



The Royal Tournament

The Royal Tournament, which opens at Olympia on May 25 and runs until June 11, will include the following displays:—Royal Naval and Royal Marine Inter-Port Field Gun Display; Musical Drive by "J" Battery, Royal Horse Artillery; Motor Cycle Display by the Royal Corps of Signals; Bridging Display by the Royal Engineers; Musical Ride by the Queen's Bays (2nd Dragoon Guards); Drill Display by the Royal Marines; Physical Training Display by the Royal Air Force; Rope Climbing Display by the Royal Navy; Activity Ride by the Life Guards; Grand Historical Display by the 1st Prince of Wales's Volunteers (South Lancashire).

A Gallant Sergeant Pilot

It is now some considerable time since the Royal Air Force has had to record a war casualty. On Sunday, April 3, however, a "Wapiti" of No. 30 (Bomber) Squadron was operating in connection with a detachment of the Iraq Army in the district of Barzen, near Mosul,

against some rebellious tribesmen. The pilot of the machine was Sergeant Herbert Victor Hudson, an Ulsterman from County Down, and the gunner was A/C Thomas Frank Merrick, whose people live in Weymouth. The Air Ministry has not yet received full details, but apparently the "Wapiti" came down very low in its efforts to give help to the Iraqi troops. The tribesmen fired at it, and fire must be a fairly common experience for airmen operating against unruly tribes. Rarely is much damage done, but in this case the aim was good, and both airmen were hit. Merrick was only slightly wounded in one foot, but Hudson was hit fatally in the chest. This happened at 2 p.m. Despite his wound, the gallant pilot succeeded in getting his machine back to the aerodrome at Adraf Diana, and landing it. Both men were at once taken into the hospital there, but Hudson died of his wound at 4.45 p.m. His resolution in getting back to the aerodrome and landing his machine probably saved the life of Merrick.

Private Flying & Gliding

THE SEASON OPENS AT SYWELL

Saturday and Sunday, April 2 and 3, were the dates of the first meeting this year of the Northamptonshire Aero Club. The occasion was not one of any vast magnitude, but was more in the way of a cheery gathering to mark the opening of the season.

During Saturday afternoon some ten visiting aircraft arrived from different parts of the country, including a formation of three from the Norfolk and Norwich Aero Club. An attempt was made to start a game of football by way of entertainment for those visiting pilots, but from the results one must conclude that flying does not encourage people to become energetic! In the evening the club arranged a most excellent and well-attended dance in the clubhouse, at which some 200 were present. On an occasion like this, and for that matter throughout the following day, it would be impossible to mention any particular members whom one might say were responsible for the success of everything, as they were far too numerous, and in fact everyone contributed in some way. The brothers Linnell were, of course, as usual, chiefly responsible for the control of the flying display on the Sunday, and all the lady members of the club worked in their usual efficient manner providing meat and drink for everyone. It was unfortunate that the Norfolk contingent had to return early Sunday morning, but several more visitors arrived to make up the deficiency, so that the fly past, which is proverbially the first item on the programme, consisted of over a dozen machines.

The club had adopted an excellent means of arousing local interest in flying and in themselves by constantly keeping in touch with the hunting element of Northamptonshire, and on Sunday this element was invited. That they were interested was shown by the fact that at one time just over 100 motor cars were present on the ground.

The flying display itself was well balanced and not too long. Each item started immediately the previous one had finished, and it was just sufficient to keep the spectators thoroughly interested until tea was ready. Following the fly past, there was a display of aerobatics by the club instructor, Mr. E. Palmer; and then our old friend "bombing with flour bags," but on this occasion called "aerial golf," the "hole" being four flags on the ground forming a square about 4 yd. each way. This was won by Mr. Geoffrey Linnell, flying solo, who had a mean error of only 2.6 yd. Mr. Linnell and Mr. Tyzack then took liberties with their "Moths," and we sincerely hope that no inexperienced pilots will be emboldened to attempt the same feats. After tea quite a large number of visitors were given joy rides, and, as usual, all were thoroughly pleased with their experience, so much so that we trust the club will reap its reward by securing many new members.

The constitution of the club has recently been re-organised to some extent, as has already been announced in our pages, and this new arrangement seems to be working very well indeed. It looked at one time as if there was a possibility of the club having to close down, but that has, we understand, been, so far as can be seen, avoided. We certainly hope so, because those at Sywell have a name second to none for the efficiency with which they run their meetings and the way in which their members spread enthusiasm for flying wherever they go. The loss of such a club would therefore be one of the greatest tragedies for provincial aviation.

Just about tea time the Duchess of Bedford, with her pilot Flt. Lt.

Allen, arrived in a "Moth" (Gipsy II), and shortly afterwards Capt. E. W. Percival came in with a "Spartan" (Gipsy II) three-seater. Other machines which created interest besides the "Moths" of the home club, were the "Comper Swift" (Pobjoy) and the "Avian" (Gipsy II), both of the Shell-Mex-B.P. Co., and painted with their vivid red, green and gold colour scheme. The "Swift" was, of course, the chief centre of attraction, particularly when Flt. Lt. Bentley had finished polishing it completely with a new polish which has been evolved by one of the club members. The "Spartan" three-seater created a large amount of interest, particularly due to its wonderful take-off, and it is surprising that far more private owners have not bought this in preference to two-seater light aircraft. Even with three up, the take-off is considerably less than the majority of well-known machines, while the landing speed is undoubtedly just as slow. In the air she is excellent to handle, there being ample control throughout the whole of the flying range and all the controls are co-ordinated perfectly. She certainly has no vices at all, merely sinking on an even keel when stalled, and is one of those machines which gives anybody a feeling of absolute confidence immediately on their first flight. At one time people seemed to fear that the "Spartan" would not stand up to hard work, but the recent tour of South Africa by Skywork, Ltd., already discussed in FLIGHT, has shown that these machines are second to none in their capacity for hard work and immunity from even minor difficulties, while their performance is equally outstanding.

SKEGNESS

The Skegness and East Lincolnshire Aero Club will be holding their pageant on Sunday, May 15, when the official opening of the club will take place. All guests who arrive by air are invited to a dinner and dance, to be held on the Saturday evening preceding. In addition to the usual events, there will also be two open Air Races, for which valuable prizes and substantial money gifts will be given. Reduced rates will be arranged for all aerial visitors at the principal hotels.

BROOKLANDS

The management are busy organising the Guild of Air Pilots' and Air Navigators' Civil Air Pageant, which is to be held at Brooklands Aerodrome on May 27 and 28, and are anxious to get in touch with any owner of a pre-war or pre-1918 aircraft. If any readers should know of an owner of such craft would they please ask them to get into touch with the Organiser at Brooklands School of Flying, Byfleet, Surrey.



AT DUNSTABLE: Erecting the B.A.C. VII in a field near Dunstable preparatory to doing some auto-towed gliding during the Easter holidays. (FLIGHT Photo.)

It has been decided to send all applicants for "B" licence night flying tests to the Cinque Ports Flying Club at Lympne Aerodrome, where machines are being equipped with navigation lights and flares.

Owing to high winds the School has only been able to carry out 40 hr. instructional flying during the week—this is rather disappointing, as many famous racing drivers have now joined the School.

The repair section of Brooklands Aviation are working overtime, and the very latest in dope shops is now completed.

FLYING AT SINGAPORE

The following very interesting table shows the steady growth which has taken place in the flying of the Singapore Club since it started in 1928. Solo flying alone has increased some 22 per cent. over the figure for 1930, while 27 "A" licences were obtained against 22.

	1928	1929	1930	1931
Hours—Dual ..	153	384	732	702
Solo ..	19	149	226	293
Various	94	125	245	307
	266	658	1,203	1,302
"A" Licences ..	Nil	15	22	27

The operation and maintenance of the aircraft of this club are matters of extreme interest to other clubs. The aircraft used consist of one Saro "Cutty Sark" and three D.H. "Moth" seaplanes, all of which use either Cirrus III or Hermes II engines. Owing to the exceptional conditions under which they are working and the corrosion which sea water so readily gives rise to, the behaviour of both machines and engines is of great interest. Due to the success of sealing all glued joints in the fuselage with marine glue, it is now possible to maintain the timber work in good condition for twelve months, a very much longer period than previously. One machine has had a new undercarriage manufactured from stainless steel, which has given every satisfaction and complete freedom from corrosion. All the aircraft are therefore being fitted with this type in future.

The last annual report stated that:—"it appears that our Cirrus Mark III engines will never wear out." The same engines have now done another hard year's work and are still in first-class condition. One of the Cirrus III's which was the last one to be overhauled was found to

require only one new piston ring for each cylinder after 504 hr. running, while the same bearings were re-assembled untouched. The Hermes Mark II engines which have been fitted to the "Cutty Sark" and to one "Moth" are giving every satisfaction, and it is confidently expected that 500 hr. will be possible between overhauls.

WATFORD LIGHT AEROPLANE CLUB

In order to adopt the most suitable design for a member's badge, the club invites designs to be forwarded to the Secretary, 33, The Parade, Watford, on or before April 14.

The competition is open to all interested, and the winning design will gain a scale model D.H. "Moth" aircraft valued at £2 2s.

All designs submitted should bear the name and address of the sender.

COVENTRY AIR PAGEANT

The Coventry Aero Club has made very good progress lately, and arrangements are well forward for their pageant, which is being held at Whitley Aerodrome on Whit Saturday, May 14. The main object of the pageant is, as usual, to raise funds, in this case, in order that the club may commence flying activities, and with this in view considerable trouble is being taken to ensure that there will be no "hedge guests." A comprehensive programme has been arranged, as well as a landing competition, while a very wide range of different types of aircraft will form part of the display.

LANDING GROUND AT EASTBOURNE

Many private owners and others have often wished that a landing ground was available at Eastbourne. Owing to the enthusiasm of certain of the residents it is now possible to land in a field known as Frowd's Field, which joins King's Drive and Hampden Park. It is situated due north and on the edge of the town. It is a very large field and cannot be missed. In order, however, that intending visitors may be certain as to which field to use, they should ring up Capt. E. I. Short (Eastbourne 3003), who will arrange for a white cross to be laid out in the field and for a car to meet the visitor. The landing fee is 2s. 6d., and the cost of a taxi from the field to the front and back is also 2s. 6d. In the event of the visitor being unable to get Capt. Short, a telephone message to the Queen's Hotel (Eastbourne 2800) will ensure that a car is there to meet him. The field itself is very large and the surface is good; no one should therefore have any difficulty in getting in or out. Besides these arrangements, the four principal hotels, namely the "Queen's," "Grand," "Park Gates" and "Cavendish," have agreed to give flying visitors special rates.



THE "TIGER MOTH" ON FLOATS: In the description of the De Havilland "Tiger Moth" Training Machine (Gipsy III engine), published in "Flight" of November 13, 1931, we included a side elevation drawing showing the machine fitted with floats and, alternatively, wheels. A set of floats has now been made for it by Short Brothers, and our photograph shows the machine in one of the shops at Stag Lane. It will be seen that the "Tiger Moth" makes quite an attractive-looking seaplane. (FLIGHT Photo.)

Airport News

Aerodrome and Airway Lighting

PROVISION of adequate lighting to aid pilots during the hours of darkness is a matter of paramount importance to commercial aviation. It may safely be said that, except in very exceptional circumstances, no commercial flying undertaking has a chance of becoming a stable business and a paying concern until its machines are running regardless of the time of day. Within recent years a great deal has been done in the matter of lighting aerodromes and airways so that not only may landings be made safely at night, but also the pilot is now assisted in maintaining his course along a regular route and thereby being certain that he is within easy reach of intermediary landing grounds should he at any time wish to make use of these.

The methods of lighting vary very considerably, most nations having their own particular scheme to which their pilots have now become familiar. Imperial Airways, Ltd., which is the only English air line company using night flying facilities regularly have so far concentrated upon the use of mobile floodlights for the aerodromes, and intermediate directing beacons on the route between Croydon and Lympne. Actually, of course, the lighting facilities on this route, and on both those aerodromes, have been

installed and are maintained by the Air Ministry, but one may safely assume that the matter has been handled in conjunction with Imperial Airways.

Besides the equipment at the aerodromes already mentioned, a floodlight together with the necessary boundary lights has been installed at Heston, a privately operated airport catering for taxi and private aircraft. Further, the authorities at two municipal aerodromes, namely, Bristol and Brighton, have shown commendable foresight in this matter. The former has a full equipment of flares which are laid out on request, or when the watchman hears an aircraft circling after dark, while the latter is budgeting for a comprehensive lighting scheme to be installed before very long. Lastly, there is one private aerodrome, that of Mr. Lindsay Everard at Ratcliffe, which has electric power points arranged at various positions around its boundary from which a floodlight may be worked, as well as a flashing beacon and boundary lights.

One of the largest makers of lighting equipment are Chance Bros., Ltd., of Smethwick, Birmingham, and following will be found a comprehensive survey of the types of lights which they are prepared to supply, and which in many cases are already in use.

A 3-LAMP FLOODLIGHT

THIS floodlight has been designed with a view to improving certain features of the existing floodlights, and its main advantages are:—(1) Improved light distribution. (2) A considerably smaller consumption of current. (3) Triple dioptric lenses with overlapping beams. (4) The fact that the failure of one lamp will still leave ample light, with reasonably good distribution, thus enabling the normal aerodrome traffic to proceed unhindered. (5) A method of dimming the lamps to prevent dazzle to the pilot of an aircraft when taxiing. This floodlight has a sharp vertical cutout, thus preventing light escaping in an upward direction. It consists of a cast base carried on one pivot and two rollers, thus allowing the whole floodlight to be slewed round in the horizontal plane. Three sectional, dioptric, lenses of 500-mm. diameter are fitted in gun-metal frames with helical bars and mounted on the base. A lantern roof and ventilator with obstruction light are fitted on the top, while the rear half of the lantern forms doors giving easy access to the inside of the floodlight. Each of the three lenses covers 120 deg. in the horizontal plane and is built up of two sets of refracting prisms and a central belt. These are arranged to give illumination over an arc of 180 deg. and each lens has a 1½-kw. filament lamp at its focal point. The light through each lamp is intensified by special de-centred

spherical mirrors giving an increased illumination of approximately 70 per cent. All the elements may be easily adjusted or focussed. This type of floodlight may be used as a fixed floodlight, or, if desired, mounted on a trailer with its own generating set.



THE THREE-LAMP FLOODLIGHT: This is a floodlight, the chief advantage of which is the fact that should one of the lamps fail there are still the other two, which together will give adequate lighting for the continuance of operations until such time as it is possible to replace the faulty lamp. The spread of illumination is particularly even.

THE MERSTHAM BEACON

THE beacon which has been installed at Merstham utilises a special three-filament 3-kw. lamp. It has a dioptric fixed-type lens giving a beam which, it is maintained, obviates the disadvantages of the horizontal beam given by the Marine lighthouse type of beacon, it being considered that as an aircraft moves in three dimensions, light from the horizontal and vertical is necessary in order that the pilot may not lose sight of the beacon from the time he comes within its range. The lamp, the light from which is intensified by a spherical silver mirror mounted on the door, is placed a little below the centre of the belt of a 500-mm. diameter dioptric lens in order to tilt the beam slightly. This lens is built up of two parts: the lower part of the lens (A) consists of three upper and five lower refracting prisms and a central belt covering a horizontal angle of 180 deg. The part of the lens system which provides the highest vertical rays (B) is fitted in 180 deg. of the lantern roof and consists of four prisms of special section

designed to give the correct distribution. The candle-power of this beacon is 85,000 in the main beam, the range being approximately 31 miles; in countries where the air is clearer, the range increases by about 30 per cent. The beacon rotates and a flashing character is obtained by means of shutters (C) fixed in front of the lens and rotating with it about a vertical axis, thus any morse character can be given by arrangement of these shutters. The revolving drive is taken through a free-wheel to permit turning the beacon for cleaning purposes.

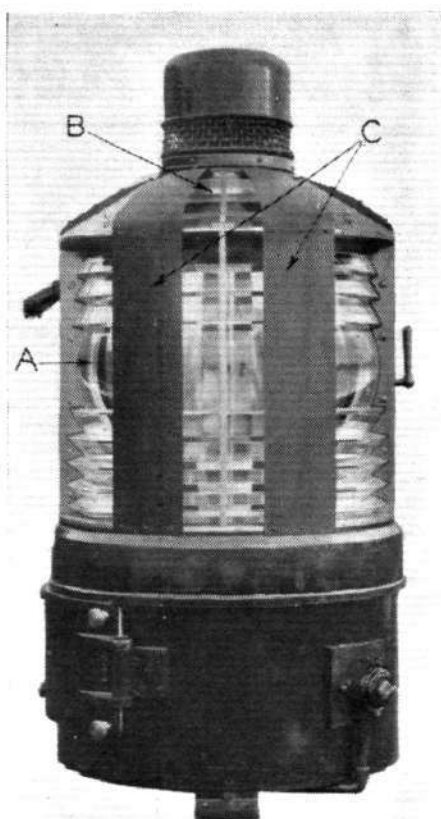
LIGHTING AT BALDONNEL

IN the Irish Free State, the Department of Defence uses an interesting form of mobile floodlight at Baldonnel Aerodrome, Dublin. This is mounted on a Morris commercial four-wheel 35-40-cwt. chassis with 11-ft. wheelbase. The 15.9-h.p. engine also runs a 6.5 kw. generator.

The floodlight itself is of the fourth order, with a 500-mm. diameter lens covering a horizontal angle of 180 deg.

In its main features the construction of the lantern is similar to the foregoing 3-lamp floodlight, with additional ventilation by means of a small fan situated in the top. The lamp holder, which has an easy focussing arrangement, carries a 5-kw. gas-filled filament lamp, while a spare lamp is fitted in a holder enabling the change to be made in a minimum of time.

An increase of light is secured by two special split and de-centred mirrors mounted on the door of the



THE MERSTHAM BEACON : This view of the beacon which is used to mark the route between Lypne and Croydon, shows very clearly the particular points of its type. (A) is the main part of the lens, with its upper and lower refracting prisms and the central belt; (B) the top refracting prisms which give the vertical beam; (C) the blanking shutters.

lantern. The floodlight is mounted on three jacks for levelling, and, being on a turntable, may be turned through an angle of 90 deg., to allow for small variations in wind direction, thus obviating the necessity of changing the position of the lorry.

THE FLOODLIGHT AT LYPNE

ILLUMINATION at Lypne Aerodrome is provided by a mobile floodlight mounted on a four-wheel trailer together with a generator run by a 14-h.p. Morris engine.

The whole unit is therefore entirely self-contained, and may be towed by a tractor to whatever point is desired. Its normal use is to illuminate the landing ground, but if desired it can be tilted to an angle of 35 deg. and revolved for use as a flashing beacon.

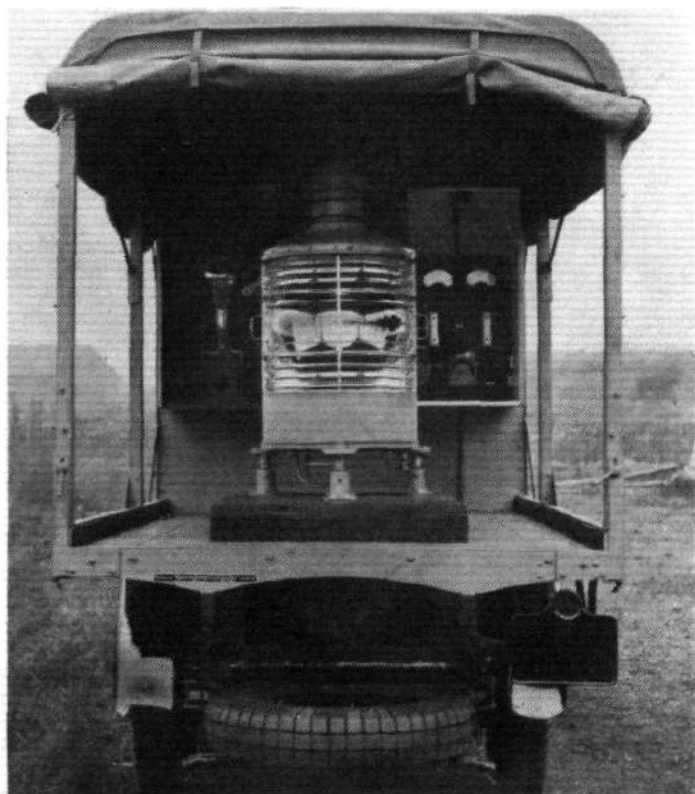
It is of the third order with a 1,000-mm. diameter fixed lens over a horizontal angle of 180 deg.

The lens is built up of 17 elements consisting of 16 refracting prisms and a central belt and the vertical divergence of the beam is reduced to approximately 3½ deg. in order to avoid dazzle to pilots on landing.

The chief points of construction of the lantern itself are similar to the other floodlights and the illumination of the 10-kw. 80-volt lamp is assisted by spherical mirrors.

The candle power given by the lens is approximately 800,000 and is capable of illuminating an area of 2,500 × 2,000 ft. with a minimum value of 0.15-ft. candles. When tilted and revolved for use as a beacon it has a range of about 49 miles.

(To be continued.)



THE BALDONNEL EQUIPMENT : This form of floodlight is extremely mobile and has the added advantage that the lantern itself is protected from the weather by the hood of the lorry. Changes of wind direction may immediately be allowed for not only by altering the position of the lorry but also by adjustment of the lantern itself.



THE LYPNE EQUIPMENT : This floodlight allows for its use as a rotating beacon as well as for illuminating the landing area on the aerodrome. When used as a beacon the whole of the lantern structure may be rotated while the lamp is elevated to any desired degree. As will be seen from our illustration, the outfit is entirely self-contained.

CROYDON

THE return of the Easter holiday-makers has made another busy week for the airlines, and all incoming machines, especially from Paris, have been full up. For the next fortnight all Paris machines are arriving at Croydon an hour earlier owing to France adopting summer time in advance of England. It is a pity that some agreement cannot be reached by all countries concerned, so that summer time is adopted simultaneously.

The Deutsche Luft Hansa very efficient night air mail service commenced on Friday, and will now continue throughout the summer. Maj. Meeling, of the Air Ministry, was a passenger on the trip which left Croydon on Tuesday.

The new British Air Transport, Ltd., had an early stroke of bad luck when their "Puss Moth" crashed at Heston a few days ago. Fortunately nobody was seriously hurt, but it inconvenienced the firm over the week-end, as they were unable to have a machine on service for joy-riding. The weather, however, was not too good for joy-riders, so their losses were not as heavy as they would have been had the weather been kind.

Mr. Man Mohan Singh, who, it will be remembered, was one of the first Indians to fly from England to India, is now undergoing his tests for a "B" licence. He started

on one of his cross-country flights on Friday, but did not complete the course, so he will have to make the flight again.

Lord Halsbury has had a mishap with his Potez. He is still an ardent advocate of the possibilities of the machine, and has been taking it all round the country demonstrating it. It is a great pity he cannot interest himself in a British product.

Messrs. Ormiston, Jackaman, Cummings, Strange, Maxwell, Bellairs and several other private owners visited Croydon this week on various types of aircraft. Mr. Jackaman came over to see how his Monospar was progressing. I think we are going to see a great many of these Monospar machines before many months are over, as it is likely to prove a popular aircraft with both the private owner and the air taxi companies. Hillmans Airways have ordered at least half a dozen, I believe, and will use them on their seaside services and general taxi flights.

The aerodrome is having its annual dressing of fertiliser, and has already taken on a springlike colour.

The Radio Beacon is now being painted in alternate bands of white and red.

The traffic figures for the week were:—Passengers, 891; freight, 31 tons.

P. B.

HESTON

MONDAY, March 28.—The bad weather, with strong winds, seriously restricted activities.

Maj. Clarke, of Personal Flying Services, Ltd., returned from Baldonnel on Hendy 302, G-AAVT.

We were favoured with a visit from Capt. de Chassy, of the French Air Ministry, who, owing to bad weather, had been forced to leave his machine at Croydon the previous evening. He was very interested in the organisation of Heston Airport, and hopes to visit us again shortly.

Flt. Lt. Russell brought back his "Redwing" G-ABOK after having been forced to land near the Chilterns the previous evening, on his way from Nottingham, owing to impossible weather conditions.

TUESDAY, March 29.—The "Stinson Jnr." (G-ABSU) arrived to clear Customs from Cannes, having Mr. Humphrey Guinness and Mr. M. H. E. Lopes, both of the Scots Greys, as passengers. They had been to Cannes to play in the Tigers' team run by Count de Madre, and competed in the Beaumont Cup. Although the team did not win, they brought back a very handsome cup as runners-up.

The B.A.N. Co.'s Blackburn "Segrave" (G-ABFP) went to Berck and returned with Mr. Sweeney and the Hon. Max Aitken as passengers. Mr. Styran, the pilot, commented on the very rough trip they had had.

While we realise that Heston is known to all aviators, it did not occur to us until to-day that it was so well known to others outside that circle. Mr. Ledlie, of Personal Flying Services, Ltd., saw a strange craft with the unusual registration of "NURP. 31 HQ. 8061" land. On investigation he discovered that it was a pigeon, completely exhausted, on its way from the South of France to the Gloucester district. With the wonderful hospitality so well known in aviation circles, he refuelled and housed it, and, after expressing its thanks in its own particular language, the pigeon flew on to its destination the following morning.

WEDNESDAY, March 30.—G-ABSU ("Stinson Jnr."), piloted by Mr. Bourn, cleared Customs for Cannes, via Paris.

THURSDAY, March 31.—Maj. Clarke, Personal Flying Services, Ltd., took two passengers to Dorchester in the "Desoutter" G-ABFO.

Four private owners reached Heston to-day on completion of their Easter Continental cruises, among them being Mr. Loel Guinness in his "Puss Moth" G-AAXR, who had made the through trip from Cannes in the day.

FRIDAY, April 1.—Mr. John Gray, of Kenya, who only arrived two days previously in England, having flown by Airline from Marseilles to Croydon, took his first flying lesson with Capt. V. H. Baker. It is his intention to take a machine back with him to Kenya to use in conjunction with his business there. We understood his already being "air-minded" when we were told he is a brother-in-law of Mr. Brian Allen, of Henlys.

SATURDAY, April 2.—Mr. R. L. Preston, the Hon. Secretary of the Household Brigade Flying Club, gave us details of the proposed programme of the flying meeting to be held by that club at Heston on the afternoon of Wednesday, May 18. It holds every promise of being an unusually interesting as well as original affair.

Mr. Wills cleared Customs with his "Moth" G-EBOI for Rotterdam, his ultimate destination being Copenhagen.

SUNDAY, April 3.—Among the visiting machines was a "Cutty Sark," most ably handled by Lord Carlow.

Capt. Sinclair, of Standard Telephones, carried out wireless tests with the "Moth" G-EBYH, which is fitted with a receiving set.

Although entries for *The Morning Post* race, to be held on May 21, are coming in well, it is hoped that those intending to compete will forward their entries as early as possible, in order that the organisers may make final arrangements.

Many pupils are taking advantage of the free tuition in navigation provided by Capt. Ferguson's Navigation School located at the Airport, and it is hoped, in the very near future, that we may be able to provide them with other concessions—of which more when the time arrives.

BRISTOL

THE Bristol Airport branch of Airwork, Ltd., has been working almost to capacity throughout the winter months, and it is pleasing to see practically every private lock-up occupied, in addition to the numerous other aircraft housed in the open hangar.

West Country private owners have realised the advantage of sending their aeroplanes to Bristol for C. of A. renewals and engine overhauls, even though they do not normally house their machines at the Bristol Airport.

One of the first demonstrations outside London of the new "Fox Moth" was given at Bristol, the machine

being flown by Mr. C. O. Powis, of Phillips & Powis, Ltd.

Whatever may be the opinion of a certain very young Member of Parliament, who recently thought it necessary to air his views in the House regarding the ability of women pilots, the distinction of being the first to qualify in the Bristol and Wessex Aeroplane Club Blind-Flying Course goes to Miss Joan Medlicott, who is an apprentice at the Airwork Bristol Airport workshops.

Miss Medlicott qualified after only 5½ hr. flying "under the hood," the final test being a compass course to a point 25 miles from Bristol and return.

THE SECOND INTERNATIONAL POLAR YEAR

IN the Air Estimates there was an allusion to a contribution which the Air Ministry is making to the expenses of the British part in the second International Polar Year. The phrase has puzzled not a few readers, but the matter was made clear the other day by Dr. G. C. Simpson, C.B., F.R.S., Director of the Meteorological Office at the Air Ministry, who gave an interview to the Press, and also introduced Mr. J. M. Stagg, B.Sc., who is to lead the British expedition to Fort Rae, in Northern Canada.

Dr. Simpson recounted that the first Polar Year was held in 1882-83. Just before that time there had been much exploration in the search for Franklyn and other ways, but the various expeditions had not collaborated in scientific observations, and practically nothing was known to scientists about polar conditions. To correct this, 12 nations decided to collaborate and send out expeditions to various points and maintain them there for a complete year in order to collect a mass of data. Great Britain and Canada combined in sending their party to Fort Rae, on the Great Slave Lake. Ever since then, said Dr. Simpson, we had been living on the results obtained in that first Polar Year.

In the meantime science had advanced, and it had been decided to celebrate the Jubilee of the first Polar Year by holding a second Polar Year, on a larger scale. It was to last from August 1, 1932, to August 1, 1933. So far as possible, the stations occupied in 1882 were to be re-occupied by the same nations. This decision was come to before the present economic stringency descended upon the world, and now it was doubtful whether Germany would be able to co-operate. Russia was spending most money upon her preparations. Great Britain would send a party of six men, under the leadership of Mr. Stagg, to the Hudson Bay station at Fort Rae, and another smaller party to the Norwegian station at Tromso.

It is perfectly obvious that the more the world knows about meteorology, the better; but the advance of the art of flying has given a great impetus to the quest for more meteorological information. Dr. Simpson pointed out that the world is like an engine, with the tropical area as the boiler and the polar regions as the condenser. The passage of the hot air from the one to the other is responsible for depressions, anticyclones, etc., and it was of the utmost importance to learn about the behaviour of the winds as they entered the polar regions. To study this



Interference with Aircraft Wreckage

THE Air Ministry desires to call the attention of the general public to the great difficulties which have sometimes been caused by private persons thoughtlessly removing parts of damaged aircraft. It is of the greatest importance that the causes of accidents to aircraft should be ascertained. Whenever a serious accident is reported the Air Ministry Inspector of Accidents proceeds with the least possible delay to the scene of the accident to examine the crashed machine, and it is essential for his purposes that the wreckage should not have been disturbed more than is necessary to set the occupants free and to prevent any immediate risk of damage to persons or property. During the interval, therefore, before the arrival of the inspector, members of the public are earnestly requested to abstain from any interference with a wrecked aircraft, except for these emergency purposes. The police already have instructions on the whole matter, and interference with wreckage is definitely prohibited by law. A further point of great importance is that broken pieces of the aircraft (for example, a part of a propeller) may be found some distance away. It will be of the utmost assistance if the finding of such pieces is immediately reported to the police, or to the Inspector of Accidents. Although breaches of the law have occurred, the Air Ministry feels sure that no one would wish to retain a broken part of an aircraft in these circumstances for whatever purpose, even though it is an apparently insignificant item, once it has been pointed out that it may be essential to the authorities for tracing the cause of the accident. In a recent case a broadcast appeal for missing parts was made and three members of the public went to much trouble in reporting the finding of certain bits of metal. This enabled the Air Ministry to establish the cause of the accident in question beyond doubt.

would be one of the most important duties of the various parties. This would be done by releasing small hydrogen balloons and following their course through a telescope mounted like a theodolite, which would give readings. It would not be necessary to retrieve these balloons.

Another task was to study the temperatures of the upper air. To do this, recording thermometers would be sent up in balloons. The latter would ascend until they burst, and the instruments would then fall to earth. It was necessary to retrieve these instruments. In this country that was an easy matter, as a notice was attached to each offering a reward to anyone who brought it in, and some farmer was fairly sure to comply. In the Arctic there were practically no inhabitants, and the problem of recovering the instruments was exercising the mind of Mr. Stagg. Specimen instruments had been shown to the Indians of the district, and it was hoped that they would bring in some of those which had fallen. Mr. Stagg was confident of getting these instruments up to 6 or 7 miles, and hoped for 10 miles. He would take out 50 balloons with instruments.

Both Fort Rae and Tromso were near the line of greatest frequency of the aurora, and terrestrial magnetism seemed to be connected with the aurora. This study of magnetism was, said Dr. Simpson, almost as important as the study of meteorology. The aurora was known to be at a height of some 60 miles. It would be photographed to show its position in relation to stars. To establish its position it would be necessary to take two photographs simultaneously with some 25 miles between the two cameras. One of the practical problems before the expedition would be to arrange communications between the two, and it was expected to use a telephone line laid across the ice when the Great Slave Lake froze, using the lake itself for the return current.

Another point which would be studied was what is called the Heaviside layer. That lay at the same height as the aurora, and the possible connection between the two would be studied. He said that only long and medium waves were reflected by the Heaviside layer; short waves passed through it and were reflected by another layer at a height of 130 miles, or more, which was the reason why short waves travelled farther than long waves. The Heaviside layer might be ironised by the aurora and the upper (or Appleton) layer by the ultra-violet rays of the sun. Prof. Appleton and three others are proceeding to Tromso to study these problems.



Over the Andes Again

MR. C. TAYLOR, who on March 9 last accomplished a magnificent flight over the Andes, from Mendoza to Valparaiso, in a Comper "Swift" (Pobjoy engine), has flown back again to Mendoza! The return flight, which was made on or about March 23, was carried out at 1,600 ft., in 1 hr. 40 min. We have received from the Comper Aircraft Co., Ltd., the following additional details from Mr. Taylor of the first flight, which may be of interest:—

"Left Cantelan Aerodrome in Buenos Aires at 5.20 Sunday morning, the 6th, arriving at Rufino 7.50. Reloaded and left at 8.45, arriving Villa Mercedes at 10.15, left 11 arriving at Las Jamarindas in Mendoza at 13.30. Sustained very severe bumps at this stretch, which is notorious for its bad conditions, there being no landing ground of any description between San Luis and Mendoza. The country here is just a long stretch of undulating sand dunes covered with thick scrub. I had considerable difficulties fixing up my papers and obtaining permission to enter Chile, but finally secured everything by Wednesday morning. Had oxygen tube lent me by the Panagra Airways, but it proved too large for the Comper so did not use it. Left Mendoza Wednesday morning, the 9th, at 7.20, gaining altitude rapidly, and at 8.30 crossed the highest point (which is at Puerto del Inca, 14,500 ft.) at 18,000 ft. altitude. Felt slight pain at temples but nothing serious. Experienced one or two bumps, but did not lose any appreciable altitude. At 9.20 ran into thick fog bank at Nogales (Chile). Circled and landed successfully in small irrigated field and deposited machine in local sheds. Was detained by the local mountain police for 6 hr. until some friends got through to Chilean Aeronautical Director and secured my release. Intend proceeding to Santiago and subsequently to Buenos Aires. Comper and Pobjoy behaved splendidly throughout for which hearty congratulations."

Airism~~s~~ from the Four Winds

Fraulein Beinhorn's Flight to Australia

FRAULEIN ELLI BEINHORN, the German girl pilot, who left Berlin on December 4 last on a trip to Australia, has at last, after many adventures, reached Port Darwin, where she arrived on March 22. She continued on her journey across Australia on March 24.

Mlle. Hilz Reaches Madagascar

THE French airwoman, Mlle. Maryse Hilz, who set out from Le Bourget on January 31 for Madagascar, has just completed an adventurous flight to that island—being the first Frenchwoman to accomplish the flight. It will be remembered that she made a forced landing near Niamey last February, and Vicomte de Sibour flew to her assistance last month, thus enabling her to continue on her journey. She reached Madagascar—after flying off her course owing to compass trouble—on April 3.

Vicomte de Sibour Back in France

VICOMTE DE SIBOUR and his wife, daughter of Mr. Gordon Selfridge, arrived back at Le Bourget on March 23 from Central Africa, where he flew to the assistance of Mlle. Hilz.

The R.A.F. Singapore-Darwin Flight

THE three Supermarine "Southampton" flying-boats of No. 205 F.B. Squadron which recently flew from Singapore to Port Darwin, started on the return flight on March 30.

Mr. Mollison Returning Home

MR. J. A. MOLLISON, who recently flew from England to Cape Town in 4½ days, sailed from Cape Town for England in the *Carnarvon Castle* on April 1; his "Puss Moth" was on board. The King's congratulations to Mr. J. A. Mollison on his "wonderful flight" to Cape Town were conveyed to him through the Governor-General on March 30.

King Albert's Congo Visit

ESCORTED by three R.A.F. machines, King Albert of Belgium, who is visiting the Congo, arrived at Butiaba, Lake Albert, in an Imperial Airways machine on March 30. He was met by Sir William Gowers, Governor of Uganda, and later embarked in the steamer, *Robert Croydon*, accompanied by the Governor, for Kasenyi, the Congo port on the lake.

A Roumanian Venture

ON March 30 a Roumanian airman, Prince Ionel Ghica, left Bucharest on an attempt to break the record for a flight from there to Saigon, French Indo China, and back. He reached Aleppo in the afternoon. Prince Ghica is flying a special machine built for King Carol II of Roumania by the Societatea Exploatair Technice. This machine, the S.E.T. 61, is illustrated on this page, and the following particulars may, perhaps, be of interest. It is fitted with a 240-h.p. Lorraine "Mizar" air-cooled radial

engine, with Levasseur metal airscrew; span, 9.80 m. (32 ft.); wing area, 24 m². (258 sq. ft.); total weight, 1,350 kg. (2,976 lb.); speed range, 80-210 k.p.h. (49.7-130.5 m.p.h.); cruising speed, 190 k.p.h. (118.6 m.p.h.); ceiling, 5,500 m. (18,045.5 ft.); range, 1,500 km. (932 miles). Shell spirit and Aero-Shell oil are being used on this flight.

The "Biarritz" gets to Australia

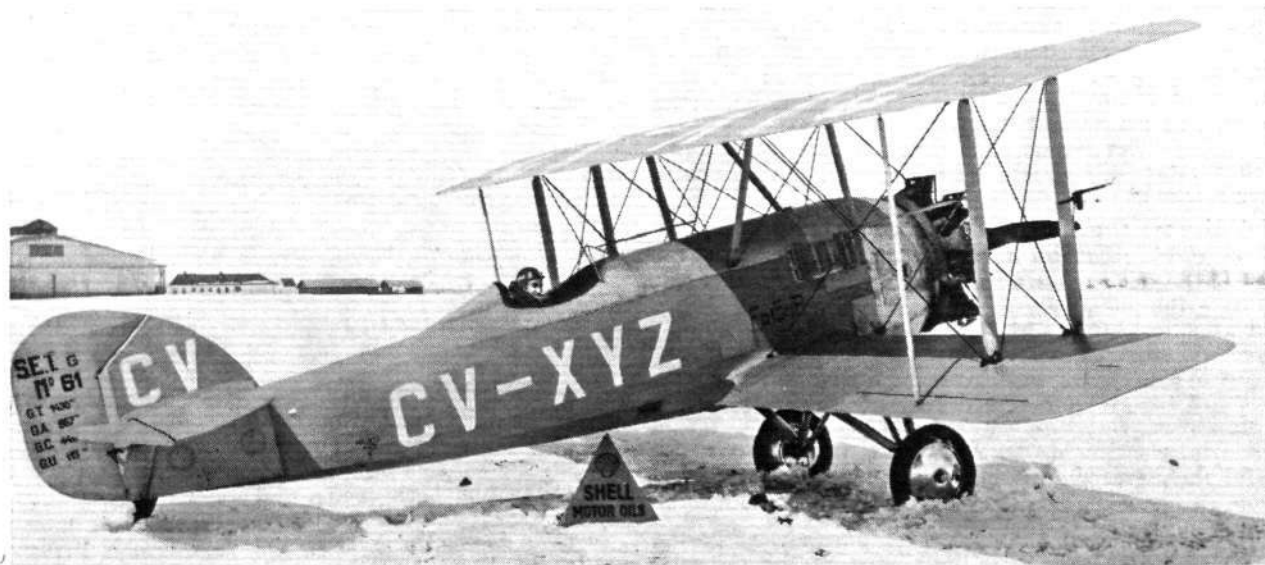
THE three French aviators, de Verneilh, Max Devé and Munch, who left Paris on March 6 in the three-engined Couzinet monoplane *Biarritz* (three "Gipsy III" engines), have arrived at their first destination, Australia. Incidentally, this is the first time that a French aeroplane has flown from France to Australia. The *Biarritz* arrived at Batavia on March 21, and on March 23 it continued on to Bima, where it arrived about 6 p.m., after a flight of nearly 1,000 miles. On March 24 the flight was continued to Kupang. The next day an unsuccessful attempt was made to take off with full load, but it was not until March 26 that the machine was able to get away (presumably rains had made the aerodrome soft), and safely make the sea crossing to Port Darwin. The journey was continued on March 28 to Camooweal via Daily Waters, and on the 29th the flight was made from there to Longreach. The next stage will be to Brisbane via Charleville, and then will follow the long sea crossing to New Caledonia. Still, with three "Gipsy III" engines, the *Biarritz* should do it safely.

Blériot Factory Resumes Activities

THE Blériot aircraft factory at Suresnes, which closed down last December, reopened on April 1. Although an additional payment by the State on account of a large 4-engined all-metal aeroplane now under construction has enabled a resumption of work, M. Blériot stated that he will be forced to close down again in a few months unless they receive a greater measure of Government support.

British Air Transport, Ltd.

DURING the past fortnight there have been certain changes in the policy and control of British Air Transport, Ltd., of Croydon, the well-known flying school and air-taxi operators. The goodwill and assets have been acquired by new interests who will pursue a policy of expansion and development of the existing business of the company. The new directors are:—Mr. W. F. Jennings, M.I.Mech.E.; Mr. W. G. Laidlaw, F.R.G.S., and Capt. Anderson, D.S.O., D.F.C., who has been chief pilot to the company since its inception. The company will continue to concentrate on tuition and air-taxi work and passenger flights of various kinds. The British Air Transport fleet is, of course, an exceptionally varied one, combining as it does "Moths," "Avians," "Klemms" and "Puss Moths"; and the company specialises in the training of "A" and "B" licence pilots and in providing night-flying facilities.



A ROUMANIAN VENTURE: The S.E.T. 61 on which Prince Ghica is attempting a record flight from Bucharest to Saigon, Indo China (see above). (Photo, Shell-Mex & B.P., Ltd.)

Air Transport

Malaya's Aerial Awakening

By GEORGE BILAINKIN (late Editor, "Straits Daily Echo")

IT is not a matter for pride on the part of Britons in Malaya that the peninsula should be so far behind in aerial development when compared with Java or Siam. Siam actually possesses, and has had for some years, an aerial mail service. Java has a weekly service to Europe, passengers being carried about nine or ten thousand miles in less than ten days. Java also runs a regular service to Singapore. The capital of the Straits Settlements has reached the stage of possessing a club, an instructor and a few machines. Kuala Lumpur, the capital of the Federated Malay States, also boasts a club, an instructor and some machines. But a flight between two points is still a matter for enthusiastic newspaper paragraphs, as, for instance, when the popular High Court Judge, Mr. Justice Sproule, made the journey across the peninsula.

The preparations for the Empire route to Australia have had the benefit, however, of awakening the home authorities to the needs of the situation in Malaya. Not only is Singapore now being equipped with a powerful air base, that will cost nearly a million pounds, but sites have been chosen in various portions of the 500-mile strip of territory, for emergency landing grounds. Penang is to have an aerodrome and Alor Star (capital of the somewhat primitive unfederated Malay state of Kedah) is already a regular stopping place for the Dutch machines. Penang will soon become of striking importance to the air organisers and much progress is being made in speeding up construction of an elaborate air station.

For some time the S.S. *Sea Belle II*, the Governor's magnificent yacht, has been engaged in a romantic task—

cruising round Victoria Point, Burma, and Alor Star (Kedah) as well as near Langkawi Island. The commission on which the yacht is engaged is to discover suitable landing grounds in cases of emergency. The Air Ministry is bearing the expenses of the trip, which lasts a month or five weeks. From the air about 20 suitable places have been suggested, but closer examination has reduced the number considerably. Langkawi, for instance, is not likely to be recommended. On this island an Englishwoman came to live about four years ago and stayed with her husband, manager of some quarry works, for nearly two years. Being the first orang puteh, white woman, she was not too popular with the Malays for a while, but later they became exceedingly friendly—as only Malays can be.

Accompanying the *Sea Belle* is a flying-boat from the R.A.F. base in Singapore which will assist in the quest. With the company are two officials from the Air Ministry, an officer of the Royal Air Force, a Siamese flying officer and a Siamese surveyor. Group Capt. Jackson is also on board, with a flying-boat at his disposal.

Singapore has recently had a surfeit of aerial visitors, including the young German woman. Some hardy travellers who were recommended to see the world quickly by means of an aeroplane, decided when they reached Singapore that this manner did not suit them, as they saw too little of the places they visited.

Among the Straits-born Chinese there is a remarkable enthusiasm for flying, and, as many of them are extremely wealthy, it is not unlikely that the possession of a machine will soon become as fashionable as it is at present to own several expensive cars.

Cyprus on the India Air Route

ANOTHER air link of Empire is to be forged as from April 17, when the flying-boats of the Imperial Airways England-India service will, weather permitting, and when operating in both directions above the Eastern Mediterranean, begin to pay regular weekly calls at the port of Limasol on the Island of Cyprus. The establishment of this new airport at a British possession which has such natural beauties, and so many historic monuments and associations, should add yet another pleasure to long-distance aerial touring, seeing that travellers will be able to reach Cyprus, from London, in not more than three days. The opening-up of Cyprus to air travellers should also prove a boon to those, say, in the desert countries of Iraq and Palestine, as it will be a swift and inexpensive flight to this beautiful island from either of these territories. Passengers, for example, who leave Basra or Baghdad on Friday will reach Cyprus before midday on Saturday, and, after spending a long week-end on the island, will be able to catch a return air service on Tuesday, alighting again at either Baghdad or Basra on Wednesday afternoon.

Imperial Airways Cross-Channel Traffic

It is stated that all records for passenger traffic between London and Paris were broken by Imperial Airways during the financial year ended March 31. The multi-engined Handley Page and Armstrong-Siddeley air liners employed on their London-Paris service carried 20,315 passengers above the Channel, as compared with the 20,104 passengers of the previous record year (1928-29). A feature is the growth of winter air travel, passenger figures during the past winter exceeding by more than 100 per cent. the figures for the corresponding period last year.

"Graf Zeppelin" has a Spot of Bother

WHILE the German airship *Graf Zeppelin* was leaving Friedrichshafen on April 4 on the second of her series of round trips to Brazil, she struck a wireless mast, causing slight damage to the airship. This could have been repaired during flight, but it was decided to moor once

more and carry out repairs on the spot. These were soon effected, and the *Graf Zeppelin* set out on her journey next day.

The Proposed Arctic-Atlantic Route

ACCORDING to the New York Correspondent of *The Times*, Pan-American Airways, which runs a mail, passenger, and freight service between the United States and South America and the West Indies, has joined with Trans-American Air Lines, of Cleveland and Detroit, in the plans for developing an Arctic air service between the United States and Europe by way of Canada, Greenland, Iceland, the Faroes, and the Shetland Islands. Trans-American Air Lines started surveys for this route more than a year ago. These will be carried further in the near future. As already reported, Judge Gudmundur Grimson, who secured permission last year from the Icelandic Althing for Trans-American Air Lines to carry air mail over Iceland for 75 years, is now in Copenhagen on a similar mission. Pan-American Airways, in joining Trans-American Air Lines in this Arctic project, has not given up its plan for an air line to Europe via Bermuda and the Azores, for which its surveys are well advanced.

Commercial Aviation in Italy

STATISTICS issued recently regarding commercial aviation in Italy show that last year the aerial mileage covered was 2,727,887, over which 33,650 passengers, 635 tons of merchandise and 71 tons of mail were carried. The commercial air lines in operation were a network of 29 routes—an increase over the preceding year of five routes. The Rome-Munich line now extends to Berlin, and the route to Gibraltar has been made to coincide with the departure from that point of the Transatlantic mail boats. The average speed throughout the year was a little over 97 miles per hour, and the regularity of the service is noted as being 98 per cent. for the stages and 93 per cent. over complete routes. The year was closed without any accident to persons or goods.

The Industry

VICKERS, LTD.

THE 65th annual general meeting of Vickers, Ltd., was held on April 4 at the Hotel Victoria, Northumberland Avenue, W.C.2.

General the Hon. Sir Herbert A. Lawrence the Chairman, presided, and after referring to the great loss to the company caused by the sudden death in May last of Sir Arthur Trevor Dawson, Bart., he turned to the report and accounts for the year ended December 31, which showed a net profit of £574,493, a reduction of £201,433 as compared with 1930. This allowed the payment of a dividend of 5 per cent. on the ordinary share capital, although it did not permit any transfer to the Reserve Fund.

After stating the position of many of the subsidiary companies, the chairman came to Vickers (Aviation), Ltd., which is entirely controlled by Vickers, Ltd. This company, he pointed out, acquired in 1929 the whole of the share capital of the Supermarine Aviation Works, Ltd., and the financial return from the aviation group had again proved satisfactory.

Reference was also made to the S.6B seaplanes, which won the Schneider Trophy outright in 1931; these were built at the Southampton works, making the fourth occasion upon which Supermarine seaplanes were successful. Flt. Lt. Stainforth's world speed record, also on a Supermarine S.6B, was mentioned, as were orders which have been received at the Weybridge works for "Victoria," "Virginia" and "Vildebeest" aircraft, while the low production costs had enabled the company to secure remunerative orders for sub-contract work.

Col. J. B. Neelson moved the re-election of the retiring directors of

Vickers, Ltd., General the Hon. Sir Herbert Lawrence and Mr. G. R. T. Taylor; Com. C. W. Craven, R.N., seconded the resolution, which was carried unanimously.

A B.T.H. APPOINTMENT

MANY people will be interested to learn that Mr. E. Sayers has now been appointed Sales Manager to the Coventry Works of British Thomson-Houston, Ltd., in place of the late Mr. E. Garton, with whom he has been associated for many years, in fact ever since 1910 when he started work at the Rugby Works of the same company. Mr. Sayers first joined the Coventry organisation just before the war, when he was employed in connection with the company's magneto business; and is now known throughout the aviation world wherever B.T.H. magnetos are used.

AERO SHELL ABROAD

PEOPLE touring abroad with aircraft should be interested to hear that Aero Shell lubricating oil is now universally distributed throughout Europe and is available at all the principal aerodromes, while those travelling on the main trunk routes to South Africa, Australia and the Far East will find no difficulty in obtaining supplies throughout their journeys.

GENERAL AIRCRAFT, LTD.

THIS firm is in the unique position of having quite a considerable number of prospective purchasers ready to pay for machines, but are adopting the very sensible scheme of waiting until the machines are actually available before promising



Above is "Dickey's" latest cartoon. This time he has pilloried Mr. Vivian Holman, the well-known sales manager of the Cirrus-Hermes Engineering Co., Ltd.

any sales. The Monospar is quite certain to be widely sought after, particularly by people who are running their air lines or taxi services across stretches of water where its capability of flying on one engine, with its consequent immunity from a forced landing, will be a great asset.

It is understood that at least two newly-formed companies in this country, which will shortly be operating ferry services to adjacent islands (in one case with a mail contract), are hoping to use the Monospar aircraft for the purpose, while two machines have been entered in the King's Cup Race, where their performance will be watched with the greatest interest.

THE AIR SURVEY CO., LTD.

NOTICE should be taken of the fact that as from March 31 the offices of the Air Survey Co. (previously at 3, Grosvenor Gardens, London, S.W.1) have been transferred to Hayes, Middlesex (Hayes 632), where all communications should be sent.

AIRSCREW HUBS

NEW HUDSON, LTD., of St. George's Works, Ickneild Street, Birmingham, are now manufacturing hubs for metal airscrews of the Leitner-Watts type. These are machined in two halves, which are, in the first place, made from stampings. The accuracy of a hub of this type is of extreme importance, and, for example, the tolerance allowed for machining the socket bores and the main bore, which is at right angles to it, is + 1 min. Even such a comparatively small part of an aircraft as an airscrew hub raises many peculiar problems when an accuracy of this nature has to be maintained. For example, the two halves have, after being bolted together complete with fittings, to be balanced in all directions to within 1 dram. An even greater problem is the accurate manufacture of hubs for three-bladed airscrews, but these have successfully been turned out by the New Hudson works, whose percentage of "scrap" has been less than 0.5 per cent.



Seaming gores for kite balloons at the R.F.D. works, Guildford. These works specialise in balloons of all types, as well as pneumatic dinghies for flying-boats, pilots' harness, and air flotation bags for seaplanes or other military aircraft operating at sea.

SERVICES RUGBY CHAMPIONSHIP

Army versus Royal Air Force

THE Army beat the Royal Air Force at Twickenham on Saturday, April 2, by three goals and two tries (21 points) to one dropped goal (4 points). This was the last match of the Services Rugby Tournament. The previous results were:—Navy beat R.A.F., and Army beat Navy. Thus the Army wins the championship, and the R.A.F. holds the wooden spoon.

No one could grudge the Army their success in both their matches. They have a very fine and well-balanced team, all lines being good in themselves, and all lines working well together. The attacking power of the Army three-quarter line is particularly penetrating. In the match against the Navy, Novis, Hunt and Crawford showed an ability to force and dodge their way through a very strong defence, which it is a joy to watch. On the other hand, the R.A.F. have had a very unsuccessful season, in the course of which Bader has been crippled in a flying accident and Ievers lost his life in a motoring accident. On the record of the two teams, I felt as I went to Twickenham on Saturday that the only point for speculation was whether the Army would run up a score of over 20 points or not. The answer proved to be in the affirmative.

It would be unjust to blame the R.A.F. for going down to such a strong combination as the Army was able to field. The forwards, finely led by G. R. Beamish, worked desperately hard and played in good form. It was no fault of theirs that, even after the Army three-quarter Tyler had left the field and Jackson had been taken out of the scrum to play on the right wing, the R.A.F. pack was usually beaten for possession by the seven Army men. The worst criticism which can be brought against the Air Force forwards is that more than once after successfully screwing the scrum, they lost the ball. This is certainly a very bad mistake to make, especially when playing against two such extremely nippy half backs as Simpson and Cole. Of the R.A.F. half backs, Collard worked very hard at the base of the scrum, and his long passes out were well directed. Williams took those same passes very well, and played a very brilliant game. He was full of ingenuity, and varied his tactics, sometimes running, sometimes passing, and sometimes kicking. He never overdid any one of the three, but he soon realised that the R.A.F. three-quarter line had not the pace to make much ground against the strong Army defence, and that the best way of gaining ground was to kick to touch. If only every fly-half would appreciate the situation so accurately, Rugby would generally be a more interesting game than it sometimes is. More games are spoilt by bad tactics on the part of a fly-half than by any other cause.

Of the R.A.F. three-quarter line, when one has said that it was too slow, one has said all that needs to be said in criticism. Men cannot make themselves run faster than nature allows them to do. These four defended well, and if they could not keep out the dangerous Army runners, they should not be unduly blamed for that. Those Army runners take a lot of stopping, and the Navy team, which has far more points about it than the R.A.F. can boast, also found that the Army men were practically unstoppable. One tackle by Hodder was magnificent, and stands out in memory as one of the bright points of the match. There was a great duel in the centre between the two Irishmen, Coote and Hunt. Hunt had the better of it, and for once Coote had a match without making a sensational run. He compensated for this by dropping a goal. This, again, showed good appreciation of the situation. The R.A.F. men were fairly obviously incapable of crossing the Army lines, and the best thing to do was to snap up four points during one of the periodic R.A.F. raids into the enemy's 25.

P/O. R. N. McKearn made an excellent début as full back in Service matches. He was full of life and dash, and usually displayed good judgment, as well as good hands and feet. He seems to be a distinct discovery.

As the teams took the field a fine drizzle started, and it grew steadily worse all through the game. There was practically no wind. The Army kicked off, playing towards the south, and at once got down on the R.A.F. line. After three minutes' play, Tyler, an Army centre, hurt his shoulder, and soon after had to leave the field, though not before he had scored a try. After seven minutes' play Hunt made a typical side-stepping run and passed to

Tyler, who scored the first try of the match. Sayers missed the kick.

Soon after, Williams broke through the centre and kicked to touch in the Army 25. A counter-attack by the Army was well cleared by McKearn. Then a good opening was made for Crawford, a dangerous runner, who went hard for the line. He had almost got there when Hodder dived whole-heartedly for his knees and sent him crashing into touch amidst the cheers of the onlookers.

A good kick by Williams took the game back to the other end, and the Army had to touch down. This brought no relief, and soon a scrum was formed in front of the Army goal. The ball came out to Coote, who very calmly dropped a goal, and put the Air Force into the lead.

Hunt took full revenge four minutes later. He had the ball, and he seemed to be tackled; but Hunt never is tackled unless he is on the ground with several men sitting on top of him. He slithered out of the tackle and gave a pass to Hobbs, who scored the Army's second try. This time Sayers converted, and the Army now led 8 to 4.

There were 10 minutes of scrambling play before the next score. This was got by the two Army halves on their own. Simpson started off and made an opening, and when he had drawn the defence he passed to Cole, who touched down near the posts. It was an easy kick, but Sayers missed it. This brought the Army score up to 11 to 4, and now the only question was how many points they would get. Just before half-time George Beamish had a great dribble, keeping the ball wonderfully close to his toes and moving at a good pace. He was alone, however, and even George Beamish could not go on for ever like that.

In the second half play continued scrambly. Hunt missed a drop at goal, and the R.A.F. soon after had to touch down. Then a free kick was given to the Air Force not very far beyond the halfway line. Coote made a splendid effort to kick a penalty goal. His kick had the length and the height, but just curled off to the left before reaching the posts. For a while the Air Force seemed to be holding their own rather better, until it seemed to occur to Novis that it was quite time that he, as captain of the Army and an English international, should score a try himself. He was then playing right centre, and he got a pass which did not seem to promise overmuch. Novis decided to make it do better than its promise. He went off to the left at a great pace, and was not interfered with by any Air Force defenders. When he had got nearly to the left touch line, he swung right again, crossed the line, and finished up behind the posts, which gave an easy kick which he himself put over the goal. It was a brilliant try, and looked so easy that one wondered why Novis ever did anything else but run round and in. The other goal came 10 min. later. Simpson again started the movement, and it went off like lightning. Cole took his pass and made his bit of ground, and Crawford finished it off by touching down. The try was scored rather far out, but Hunt converted with a very fine kick.

The teams were:—

R.A.F.—P/O. R. N. McKearn (Digby); P/O. T. A. B. Parselle (57 B.S.); P/O. P. B. Coote (Cranwell); F/O. S. D. Slocum (43 F.S.); Flt. Lt. F. S. Hodder (Henlow); L.A.C. S. Williams (Boscombe Down); P/O. R. C. M. Collard (2 F.T.S.); F/O. C. Beamish (Gosport); P/O. G. E. Valentine (2 F.T.S.); L.A.C. A. E. Simmonds (Henlow); Sgt. J. Lewis (Uxbridge); F/O. H. A. Constantine (C.F.S.); P/O. E. A. Collins (57 B.S.); F/O. G. E. S. Williams (58 B.S.); Flt. Lt. G. R. Beamish (Capt.) (Henlow).

Army.—Lt. S. T. A. Radcliffe (R.E.); Lt. A. L. Novis (Capt.) (Leicestershire Regt.); Lt. E. W. F. de V. Hunt (R.A.); Lt. A. W. Tyler (R.A.); 2nd Lt. J. A. Crawford (R.E.); Lt. J. R. Cole (Loyal Regt.); 2nd Lt. F. W. Simpson (R.E.); Lt. H. Rew (R.T.C.); Lt. H. H. C. Withers (R.E.); 2nd Lt. C. L. Troop (D. of Wellington's); Lt. G. S. Hobbs (R.A.); Lt. T. H. Clarke (Gloucestershire Regt.); Lt. F. C. Jackson (Indian Medical Services); L. Cpl. E. H. Sadler (Royal Signals); 2nd Lt. H. J. Sayers (R.A.).

F. A. DE V. R.

THE ROYAL AIR FORCE

London Gazette, March 29, 1932
General Duties Branch

The follg. Pilot Officers on probation are confirmed in rank (March 13):—
J. L. Armstrong, M. D. C. Biggie, R. V. Bucknall, J. W. Burgess, C. N. Carpenter, H. V. Horner, W. L. Houlbrook, C. H. Mallinson, J. B. Sims, R. J. Twamley, H. McC. White. The follg. Pilot Officers are promoted to rank of Flying Officer: I. G. Ross, (Jan. 12), H. B. Wrigley (Jan. 26), C. G. Skinner (March 12).

Wing Com. F. H. Unwin, O.B.E., is placed on retired list (March 27).

Stores Branch

Flying Officer on probation L. H. Anness, A.F.C., is confirmed in rank (Jan. 9).

ROYAL AIR FORCE RESERVE RESERVE OF AIR FORCE OFFICERS

General Duties Branch

The follg. are granted commissions in Class AA (ii) as Pilot Officers on probation:—D. R. Ashworth, J. P. H. Balston, A. T. Brock, G. A. Brown, R. E. Collins, K. C. Cooke, J. A. Cope, E. C. Daniels, P. K. Devitt, C. J.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Wing Commander R. T. Leather, A.F.C., to H.Q., Middle East, Cairo, 19.3.32, for Air Staff duties, vice W/Cdr. A. T. Harris.

Squadron Leader D. Colyer, D.F.C., to No. 10 (B) Sqdn., Boscombe Down, 22.3.32, for Flying duties, vice S/Ldr. W. Underhill, D.S.C.

Flight Lieutenants: V. Harris, to H.Q., Iraq Command, Hinaidi, 18.3.32. L. W. Cannon to R.A.F. College, Cranwell, 17.3.32. G. W. Hayes, to No. 2 Flying Training School, Digby, 22.3.32. A. E. Paish to Aeroplane and Armament Experimental Estab., Martlesham Heath, 24.3.32.

Flying Officers: C. A. Washer, to Station H.Q., Hal Far, Malta, 18.3.32. E. G. Reed, to No. 6 (B) Sqdn., Ismailia, Egypt, 18.3.32. R. A. Chignell, to School of Naval Co-operation, Lee-on-Solent, 1.3.32. R. J. T. Barrett, to Anti-Aircraft Co-operation Flight, Biggin Hill, 18.3.32. G. F. Hales, to No. 3 Armament Training Camp, Sutton Bridge, 16.3.32. M. T. M. Hyland, to No. 3 Armament Training Camp, Sutton Bridge, 16.3.32. A. D. Selway, to Central Flying School, Wittering, 27.3.32. L. M. Hooper, to No. 3 Armament Training Camp, Sutton Bridge, 15.3.32.

Pilot Officers: The undermentioned Pilot Officers are posted to No. 4 Flying Training School, Abu Sueir, Egypt, on 18.3.32. J. G. Davies, R. J. R. Docker, A. Franklin, P. K. Laing, M. C. Moore, J. J. Watts, A. J. Hicks, to No. 45 (B) Sqdn., Helwan, Egypt, 11.3.32. G. F. Wood, to No. 216 (B.T.) Sqdn., Heliopolis, Egypt, 11.3.32. S. M. Moseley, to No. 1 (F) Sqdn., Tangmere, 27.3.32. H. R. A. Edwards, to No. 17 (F) Sqdn., Upavon, 27.3.32. A. L. Holland, to No. 17 (F) Sqdn., Upavon, 27.3.32. E. A. Springall, to No. 17 (F) Sqdn., Upavon, 27.3.32. G. L. Best, to No. 18 (B) Sqdn., Upper Heyford, 27.3.32. R. H. Hobbs, to No. 19 (F) Sqdn., Duxford, 27.3.32. D. Scorgie, to No. 19 (F) Sqdn., Duxford, 27.3.32. J. M. Freeman, to No. 23 (F) Sqdn., Kenley, 27.3.32. J. A. Dixon, to No. 23 (F) Sqdn., Kenley, 27.3.32. F. W. C. Shute, to No. 23 (F) Sqdn., Kenley, 27.3.32. S. Keane, to No. 29 (F) Sqdn., North Weald, 27.3.32. J. F. Stephens, to No. 32 (F) Sqdn., Kenley, 27.3.32. G. H. Denholm, to No. 32 (F) Sqdn., Kenley, 27.3.32. W. E. Coope to No. 33 (B) Sqdn., Bicester, 27.3.32. D. L. Dustin, to No. 41 (F) Sqdn., Northolt, 27.3.32. C. C. McMullen, to No. 43 (F) Sqdn., Tangmere, 27.3.32. P. A. de G. Tettemborn, to No. 43 (F) Sqdn., Tangmere, 27.3.32. J. D. Miller, to No. 43 (F) Sqdn., Tangmere, 27.3.32. W. N. Elwy-Jones, to No. 54 (F) Sqdn., Hornchurch, 27.3.32. L. C. Slee, to No. 56 (F) Sqdn., North Weald, 27.3.32. H. R. Graham, to No. 56 (F) Sqdn., North Weald, 27.3.32. S. E. R. Shepard, to No. 56 (F) Sqdn., North Weald, 27.3.32. A. W. M. Finny, to No. 57 (B), Sqdn., Netheravon, 27.3.32. P. H. Hamley, to No. 111 (F) Sqdn., Hornchurch, 27.3.32.

Stores Branch

Flying Officer P. J. Mote, to R.A.F. Base, Gosport, 14.3.32.

Flight Lieutenant R. A. Young, to Station H.Q., Kenley, 14.3.32.

Donovan, C. A. H. Evans, W. E. Evans, J. A. Gillies, L. R. D. Hollis, G. S. Hook, G. E. Jackson, R. W. Jones, R. Long, M. Trentham Maw, J. R. McReady, F. W. Moss, D. C. Oliver, L. D'A. Orpen, H. F. Palin, M. C. Rigby, E. B. Robertson, A. J. Sayer, J. M. Scott, L. G. Sparrow, G. S. Stead, J. W. J. Truran, J. Vivian, P. D. Walker, S. M. M. Watson, K. C. Willett, W. R. Wilson, P. B. Wood, F. G. Woodward, R. C. M. Yates (March 14); R. T. Gething (March 15); R. G. Grant (March 17).

Flight Lieut. S. J. Stocks is transferred from Class A to Class C (Oct. 14, 1931); Flying Officer D. L. Maclean is transferred from Class C to Class A (Feb. 1); Flying Officer G. W. Smart relinquishes his commn. on completion of service (March 11).

SPECIAL RESERVE

General Duties Branch

Flying Officer J. C. McE. Gibb is transferred to Reserve, Class A (Feb. 5).

AUXILIARY AIR FORCE

General Duties Branch

No. 601 (COUNTY OF LONDON) (BOMBER) SQUADRON.—C. G. Hohler is granted a commn. as Pilot Officer (March 7).

Accountants Branch

Flying Officers: F. Rigby, to Station H.Q., Upavon, 16.2.32, instead of as previously notified, 26.2.32. C. Lorimer, to No. 47 (B) Sqdn., Khartoum Egypt, 5.3.32.

Flight Lieutenant A. E. West, to Station H.Q., Manston, 21.3.32.

Medical Branch

Group Captain A. W. Iredell, to H.Q. Inland Area, Stanmore, 14.3.32, for duty as Principal Med. Officer, vice Group Capt. H. W. Scott.

Squadron Leader C. T. O'Neill, O.B.E., to Central Med. Estab., 14.3.32, for duty as Medical Officer.

Flying Officers: F. I. G. Tweedie, to R.A.F. General Hospital, Hinaidi, Iraq, 17.2.32. J. A. Kersley, to No. 3 Flying Training School, Grantham, 17.3.32. R. L. Raymond, to Central Flying School, Wittering, 17.3.32.

Group Captain H. W. Scott, to No. 21 Group H.Q., West Drayton, 21.3.32 for duty as Senior Med. Officer.

Flight Lieutenants: C. G. J. Nicholls, to Air Armament School, Eastchurch, 21.3.32. N. I. Smith, to No. 2 Armament Training Camp, North Coates Fitties, 18.3.32. P. D. Barling, to No. 3 Armament Training Camp, Sutton Bridge, 24.3.32. J. H. Cullinan, to Princess Mary's R.A.F. Hospital, Halton, 24.3.32. C. G. Harold, to No. 1 Armament Training Camp, Catfoss, 24.3.32.

Flying Officers: D. C. MacGilchrist, to Training Base, Leuchars, 26.3.32. C. A. Rumball, to R.A.F. Pathological Lab., Halton, 26.3.32. A. M. Weston, to No. 5 Flying Training School, Sealand, 26.3.32.

NAVAL APPOINTMENTS

The following appointments have been made by the Admiralty:

Lieut-Comdr. (Flt. Lieut., R.A.F.).—J. H. F. Burroughs, to *Glorious*.

Lieuts. (F/O., R.A.F.).—A. M. Pilling, to *Courageous* (April 4); E. J. E. Burt, to *Furious*; and J. E. Fenton, to *Courageous* (April 5); F. E. C. Judd, to *Glorious*; J. N. Garnett, to *Furious*; P. H. Cardew, to *Courageous*; A. F. Hall and I. C. Rowe, to *Glorious*; and P. G. O. Sydney-Turner to *Furious*.

Sub-Lieuts. (F/O., R.A.F.).—J. M. Wintour, to *Furious*; J. W. S. Corbett, to *Courageous*; and L. C. B. Ashburner, to *Glorious*.

Promotions

Sub-Lieutenants: M. Bruce (F/O., R.A.F.), to rank of Lieutenant (seny. March 1); J. W. S. Corbett (F/O., R.A.F.), to rank of Lieutenant (seny. March 16).



KARACHI RUGBY FOOTBALL TOURNAMENT: A scrum during the final match between the R.A.F., Karachi, and the Royal Fusiliers from Ferozepur. The R.A.F. team are wearing white shorts. Their colours are light blue jerseys and dark and light blue stockings. The Royal Fusiliers won this match by 16 points to 5. Teams from all over India, mostly British regiments, now enter for this tournament. The scene, with its crowd of Indian spectators, the cars on top of the hill, and the bamboo goal posts, is a great contrast to a Services Tournament match at Twickenham.

AIR POST STAMPS

By DOUGLAS ARMSTRONG

It is singularly appropriate that the nations should pay tribute through the medium of stamps specially designed for aerial postage to the men of genius and daring who in bygone days blazed the trail to the skies. Already the collector of air post stamps can point to specimens in his album which perpetuate the memories of such pioneers in the field of aviation as Father Bartholomew Gusmao, whose aerostat was demonstrated before the King of Portugal in the latter part of the eighteenth century; Santos Dumont and Augusto Severo, the Brazilian inventors of airships and aeroplanes, and William Kress, who designed one of the first aerial motors.

Leonardo da Vinci

Now Italy has come along with a striking set of six air mail stamps commemorating the dream of Leonardo da Vinci, artist, author, scientist and mechanic, who first conceived the idea of human flight and actually experimented with a kite-like flying machine propelled by man-power which figures in the design of certain of the latest Italian stamps. The remainder portray the "Faust of the Renaissance" with the dedication "Pigliera il suo primo volo empiendo l'universo di stupore (Leonardo)," after the design of C. Mezzana. The denominations and colours of these particular stamps are 50 centesimi sepia, 1 Lira violet, 3 Lire brick-red, 5 L. green, 7 L. 70 cmi. x 2 L. blue and 10 x 2 L. 50 sepia. The surtax upon the two highest values goes to the funds of the National Society Dante Alighieri for the propagation of Italian culture.

Obsolescent Air Stamps

Two sets of air mail stamps at present in daily use in their respective countries are about to become obsolete and may consequently be expected to appreciate in value in the not too distant future. It is officially announced that when the existing stock of South African air stamps is exhausted no further printings will be made, and this edict will apply equally to the mandated territory of South-West Africa. Presumably the air post service will then be carried on by the Union Government without the aid of distinctive stamps, as in the United Kingdom.

Discontinuance of the Junkers air mail service in Persia will dispense, temporarily at any rate, with the need for air post stamps, so that the new series in course of preparation may not be required after all.

"Graf Zeppelin" Mails

It is a foregone conclusion that the series of ten special flights to be undertaken by the giant dirigible during the present year will result in further additions to the air stamp collection. Letters were carried on the recent flight to Brazil and back in either direction, the fee levied by the German postal authorities being RM. 1.25 to Brazil and RM. 1.50 to other South American countries, over and above the normal postage. The Zeppelin stamps themselves being obsolete, it may be assumed that souvenir cachets alone were applied to such correspondence.

Canada's Provisional Air Stamp

To meet the increased rate for aerial postage arising out of the depreciation of the Canadian dollar, two million copies of the old original 5 cents air mail stamp of 1928 were re-issued boldly surcharged with a figure "6" and with the first value barred out. It is rumoured that pending preparation of a definitive 6 cents air stamp a similar surcharge will be apposed upon the Canadian air mail stamp of December, 1930.

Air Stamps for Iraq

The Iraq Government having lately assumed control of its own postal affairs, as an independent state, an order for a series of special air mail stamps has been placed with a London firm of stamp engravers. The main feature of the design will be an Imperial Airways plane passing over the River Tigris.

Andorra's Air Post

Andorra, the hermit republic of the Pyrenees, is about to be connected with Barcelona by means of a regular air line, touching at Seo de Urgel on the Spanish border. The project has been approved by the Spanish Air Ministry and a decree of February 19 published in the *Gazette de Madrid* provides for the transportation of both passengers and mails. Special stamps are to be employed in the form of the contemporary postage series with the addition of an aeroplane device, overprinted.

Latest Issues

The latest additions to the world's air post stamps include a set of four provisionals from Guatemala overprinted "Servicio Aereo Interior 1932," and surcharged with new values upon obsolete postage types; a set of four picturesque vignettes commemorating the VI Annual Trade Fair at Tripoli, depicting hydroplanes passing over Beduin encampments and the white roofs of Tripoli itself; and a poorly printed series from Nicaragua recording the earthquake of twelve months ago.

Answer to Correspondent

N.V. (India).—There is, unfortunately, very little demand to-day for air post covers which do not carry special stamps either in addition to or in lieu of cachets and postmarks. Those referred to might possibly realise a pound or so each, but the market is a very limited one.

PUBLICATIONS RECEIVED

A History of Fire and Flame. By Oliver C. de C. Ellis. Published for the Poetry Lovers' Fellowship by Simpkin, Marshall, Ltd., London, E.C. Price 15s. net.

1927 Schneider Trophy Contest: Collected Reports on British High-Speed Aircraft. With an Introduction by W. L. Cowley, A.R.C.Sc. Aeronautical Research Committee Reports and Memoranda, No. 1,300. London: H.M. Stationery Office, W.C.2. Price 20s. net.

Bulletin Technique du Bureau Veritas. Special Number on Aeronautics. February, 1932. Bureau Veritas, 31, rue Henri-Rochefort, Paris. Price 5 fr.

Aeronautical Research Committee Reports and Memoranda: No. 1,414, *Drag and Interference of a Nacelle when Installed on the Upper Surface of a Wing.* By W. G. A. Perring and C. Callen. September, 1930. Price 1s. 3d. net. No. 1,427, *Primary Stresses in the Hull of a Rigid Airship.* By L. Chitty and R. V. Southwell. May, 1931. Price 2s. net. No. 1,430, *Simple Tilting Manometer for Rapid Reading.* By J. Small. October, 1931. Price 6d. net. No. 1,436, *Torsional Loading on Stripped Aeroplane Wings.* By H. R. Cox. August, 1931. Price 9d. net. London: H.M. Stationery Office, W.C.2.

AERONAUTICAL PATENT SPECIFICATIONS

(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motors. The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

APPLIED FOR IN 1930

Published April 7, 1932

- 26,804. J. TACKMAN. Rotary i.c. engines. (268,794.)
32,820. R. D. ROBERTS. Docking or undocking of airships in winds. (368,747.)

APPLIED FOR IN 1931

Published April 7, 1932

- 2,213. CESKOSLOVENSKA ZBROJOVKA AKCIOVA SPOLECNOST V BRNE and K. STALLER. Setting-mechanism for machine guns firing through the path of propeller blades. (368,915.)
3,946. E. G. BUDD MANUFACTURING CO. Girders for use in aircraft. (368,937.)
11,413. H. C. A. POTEZ. I.c. engines supercharged by exhaust-driven turbo-compressors. (369,033.)
13,085. E. G. BUDD MANUFACTURING CO. Trusses for use in aircraft. (369,051.)
13,659. FAIRCHILD AERIAL CAMERA CORPORATION. Cameras. (369,057.)
22,019. NAAMLOOZE VENNOOTSCHAP NEDERLANDSCHE INSTRUMENTEN CIE. Sighting-devices for aircraft. (369,130.)

FLIGHT, The Aircraft Engineer and Airships.

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Holborn, 1884.

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